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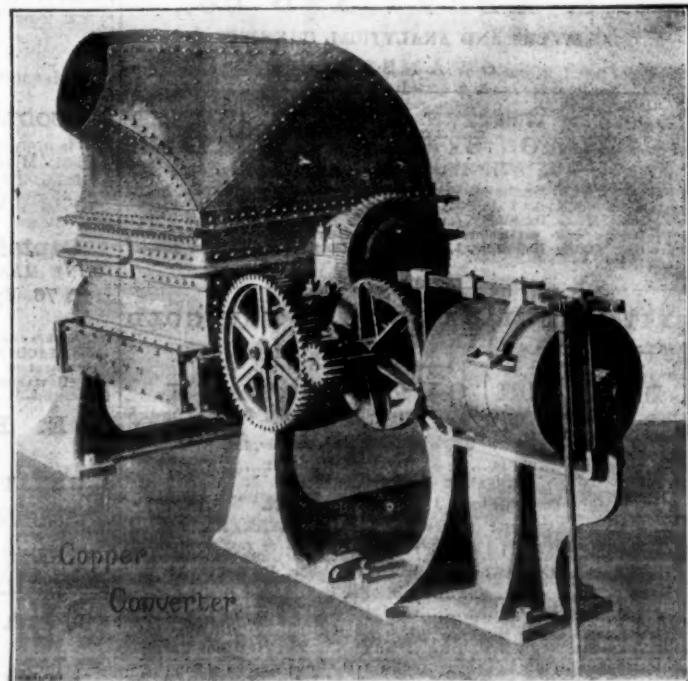
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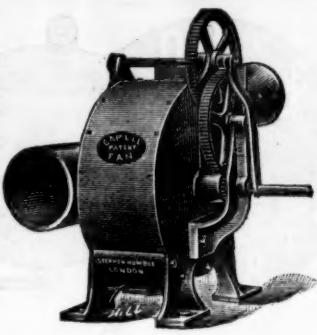
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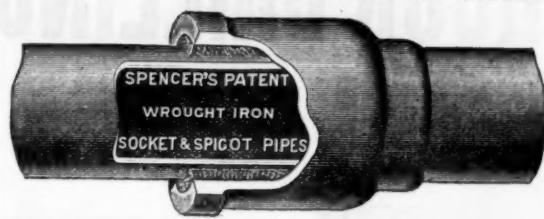
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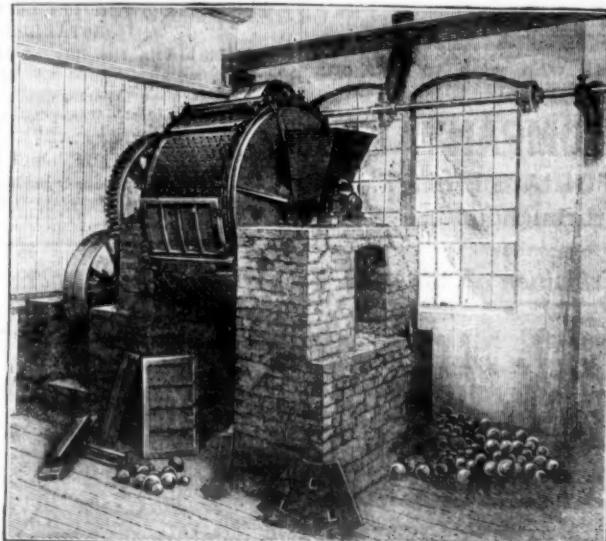
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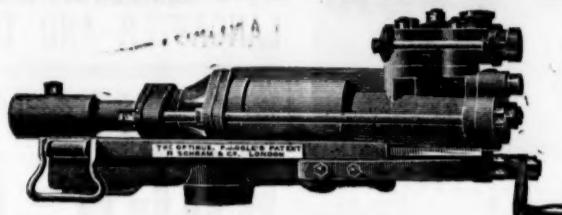
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From Major M. J. Balfe,
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Master of the Berwickshire Hounds.

From R. Burdon Sanderson, Esq., Warren House, Belford July 10th, 1892.

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R. BURDON SANDERSON.

Master of Percy Foxhounds.

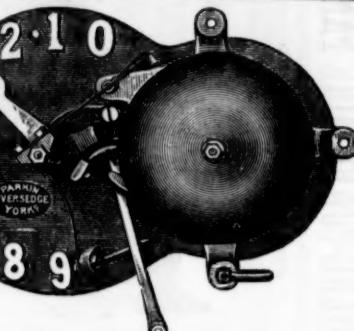
From Wm. J. Buckley, Esq., Pen-y-fai, Llanely.

July 16th, 1892.

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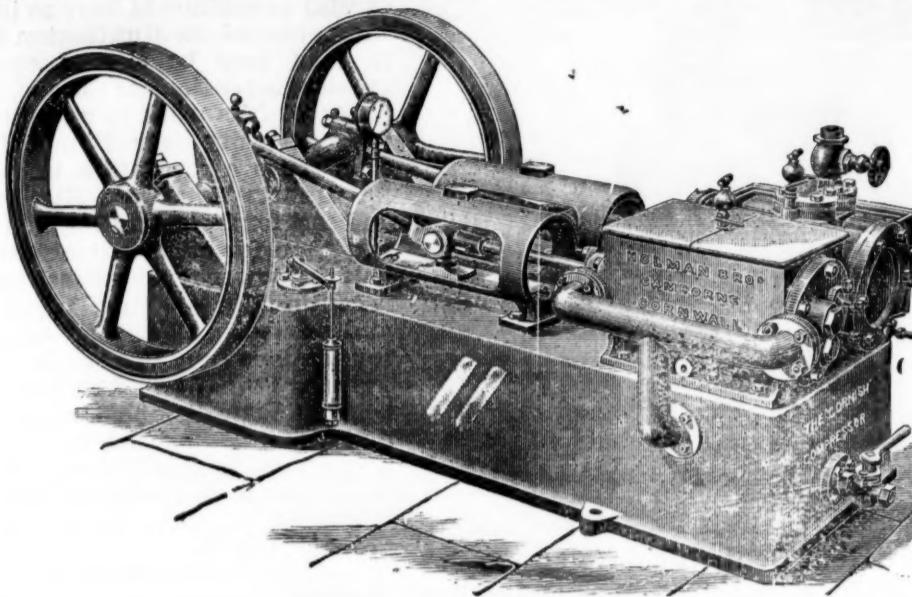
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At Botallack Mine, St. Just, Cornwall, TWELVE MEN with TWO new Patent C^ORNISH ROCK DRILLS drove, sunk, and rose 288 FATHOMS in 12 MONTHS, equal to five times the Speed of Hand Labour

At Wheal Grenville Mine, Camborne, Cornwall, SIX MEN with TWO new Patent C^ORNISH ROCK DRILLS started from the 150 FATHOMS level and put up in EIGHT MONTHS a 11 FEET by 5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES, and about midway drove 1 FATHOM 5 FT. No communication of any kind was effected until hoisting to the Shaft brought down from surface.

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AWARDS: CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

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The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the address given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

HOME CONTRACTS.

Railway Stores, November 28 (London, E.C.)—For the supply and delivery of (1) flanged steel end top flap-doors for wagons, (2) wrought iron gas tubing, (3) spring steel, (4) turpentine, (5) canvas and minkrubber hose, (6) varnish, for the East Indian Railway Company, as per specifications and drawings to be seen at the company's offices. Tenders are to be sent to Mr. A. P. Dunstan, secretary, Nicholls Lane, E.C.

Coal, November 28 (Kingston-upon-Thames).—For the supply of 25 tons of best Hutton Lyons Washed coal, well screened, to be delivered at the Isolation Hospital, Red Lion Lane, Tolworth, immediately on acceptance of tender, for the Kingston Union Rural Sanitary Authority. Tenders are to be sent to Mr. Jas. Edgell, clerk, Portsmouth Road, Kingston-on-Thames.

Bailings, December 3 (London, N.).—For the supply and erection of wrought iron railings and strained wire fencing, for the vestry of St. Mary, Islington. Drawings, conditions, and specifications may be seen, and forms of tender, with quantities obtained, on application to the chief surveyor (Mr. J. Fatten Barber) between 9 and 12 noon, on payment of £1 1s., which will be returned on the receipt of a bona fide tender, together with all the documents issued.

Colliery Stores, December 4 (South Hetton, Sunderland).—For next year's supply of iron castings, wire ropes, oils, and other colliery stores except timber, for the South Hetton Coal Company (Limited). Forms of tender and specification, with full conditions, may be obtained from Mr. J. R. Lambert, South Hetton, Sunderland, and applicants for forms must state the kind of stores for which they wish to tender. Tenders to be addressed to the South Hetton Coal Company (Limited), South Hetton, Sunderland.

Culvert, December 4 (Brentford).—For constructing about 184 yards of 3 feet diameter brick culvert between the Enfield Road and Whistable Road, Brentford, for the Brentford Local Board. Forms of tender, together with quantities and conditions, may be obtained, and specification and plans inspected, on application personally to Mr. Nowell Parr, C.E., surveyor, Clifden House, Boston Road, Brentford.

Reservoir, January 3 (Bangor, Ireland).—For the construction of a reservoir and other works connected therewith, including the inlet drain, pipe line to join present reservoir and town pipe, catchwater drain to little Clandeboye, tanks, &c., for the Bangor Waterworks, in accordance with the drawings and specification prepared by Mr. Henry Chappell, engineer, which may be seen at the office of Mr. Francis Pollock, Town Clerk.

Shaft Sinking (Fourtress, Northumberland).—For the sinking of one or two shafts to the further depth of about 50 fathoms at Stoncroft by the drill process only, contractor finding dril, &c. Particulars may be had by applying by letter to Mr. Thos. Clarke, Stoncroft, Fourtress, N.E.O.

NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs. Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 21245 Richard Fegan, Templecrown, Blackheath, London.—Improvements in smelting ovens.—November 5.
- 21263 William Charles Lickwood, Denby Collieries, near Derby.—Combined shoot and creeper for conveying and loading coal.—November 6.
- 21316 William Glendinning, jun., 70, Wellington Street, Glasgow.—Improvements in connection with steam boilers.—November 6.
- 21321 Arthur Eastwood, 6, Lord Street, Liverpool.—Improvements in steam and other expansion engines.—November 6.
- 21326 William Phillips Thompson, 6, Lord S.R.E., Liverpool.—Improvements in muffle furnaces.—November 6.
- 21325 Ernest Ramsey, 47, Lincoln's Inn Fields, London.—Improvements in coal and mineral washers.—November 6.
- 21336 Heinrich Degener, 37, Chancery Lane, London.—An improved safety device for use in connection with water gauges for steam boilers and the like.—November 6.
- 21359 James Murrie, 284, St. Vincent Street, Glasgow.—Improvements in steam boilers, furnaces, and apparatus in connection therewith.—November 7.
- 21407 Herbert Hall Mulliner and Herbert Austin, 18, Southampton Buildings, Chancery Lane, London.—Improvements in furnaces and appliances for heating tyres.—November 7.
- 21411 Joseph Thompson, 3, St. Nicholas Buildings, Newcastle-on-Tyne.—Improvements in or relating to the construction of furnaces.—November 7.
- 21425 William Allman and John Millward, 45, Villas Road, Handsworth, Birmingham.—Improvements in apparatus for operating well pumps.—November 7.
- 21447 James Yate Johnson, 47, Lincoln's Inn Fields, London.—Improvements in alkaline salts, or the salts of alkaline earth.—November 7.
- 21456 Robert Thomas Preston, 77, Chancery Lane, London.—Improvements in and connected with shields for steam water gauges.—November 7.
- 21542 Simpson, Strickland and Co. (Limited), 78, Chancery Lane, London.—Improved construction of water steam generators.—November 7.
- 21562 Walter Triggs, Ash Villa, Fulward, Preston, Lancashire.—The cheque valve indicator.—November 8.
- 21645 Henry Cambridge, 22, Southampton Building, Chancery Lane, London.—Improvements in steam engines.—November 9.
- 21698 George Henry Taylor, 323, High Holborn, London.—Improvements in or relating to gas fired steam boilers.—November 10.

SPECIFICATIONS PUBLISHED.

- 19,646, Harris, bolts for boiler covers, 1893 : 20,007, Ryland, explosion engines 1893 ; 22,307, Peart, F. and others, steam, &c., pumps, 1893 ; 22,775, Mills, steam generators, 1893 ; 24,198, Lake, steam engines, 1893 ; 24,258, Durand, explosion engines, 1893 ; 24,434, How, steam boiler, &c., furnaces, 1893 ; 24,454, Shanks, steam engines, 1893 ; 17,701, Hay, steam generators, 1894 ; 17,714, Lutz and Shuler, steam boiler, &c., furnaces, 1894.
- The above specifications published may be had of Messrs. Rayner and Company, 37, Chancery Lane, London, at 1d. each including postage.

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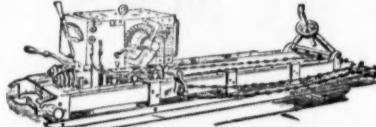
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OUR INQUIRY COLUMN.

TO CORRESPONDENTS.

Correspondents will please take note that all communications will be answered in this column and not through the medium of the post. All questions and replies should be accompanied by the name and address of the writer.

REPLIES.

W. L.—If you are entitled to an allotment of the stock, we should certainly advise you to take it.

ADVENTURER.—It is extremely doubtful. The atmosphere at present is exceedingly depressing.

WELSHMAN.—1. We do not recognise the title of this company.—2. The fully-paid shares seem cheap.

INQUIRER.—B.t.h securities should be held.

ANXIOUS.—It is impossible to say. No doubt you are aware that the product of such mines varies considerably.

YORKSHIREMAN.—The matter is one which should be referred to a solicitor.

M.—Sell 1, 2, and 3; keep 4.

VINCENT.—(1.) Transvaal Gold will probably rise, but we are doubtful of New Clewer.—(2.) We think you would do well to purchase a few of these.

CRONY.—You may buy 2, 3, and 5, but none of the others at present prices.

DURING the quarter ended on September 30, 62,846 ounces of gold, valued at £238,816, was declared for export in Western Australia. Of this quantity 45,202 ounces came from the Coolgardie district, 11,471 ounces from the Murchison, 3297 ounces from Pilbara, 2607 ounces from Yilgarn, 203 ounces from Kimberley, 49 ounces from Dundas, and 14 ounces from Ashburton. The total for the June quarter was 40,450 ounces.

MR. H. C. JONES, a prospector in the service of the West Australian Gold Fields and Hampton Plains, has struck rich auriferous quartz, the gold being visible in the Mount Martin block. Very fine gold has been struck in the 280 feet level of Bayley's. The fine cement deposits of the White Feather Chai are to be worked by a syndicate from Melbourne. Mawson's Reward have just ordered five more stamps.

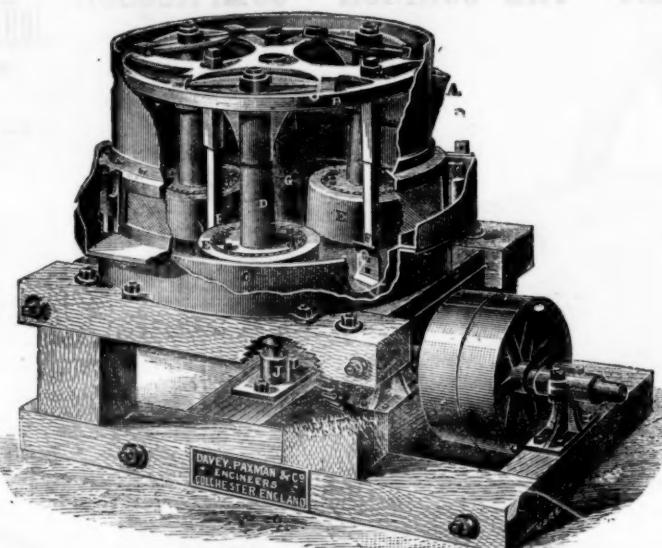
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LONDON OFFICE
78 [late 139], QUEEN VICTORIA STREET.

THE PROFITS OF GOLD MINING.

By Mr. NICOL BROWN, F.G.S.

(Continued from page 1259.)

Mining.

THE mining operations should be under the control of an educated and experienced mining superintendent. He must be a practical working miner and should have experience of mining in different parts of the world. It is a great disadvantage to employ a miner whose prejudices have been developed by long experience in one particular series of rocks or of physical structure of country. Such a man, however capable otherwise, has no resources when he comes to deal with new difficulties. Many good mines have been condemned by such men. Having considered the distribution in nature of rock matters carrying gold, the cost of bringing these auriferous ores to gravels and their delivery to the mills for the extraction of the gold should now be investigated.

The various methods of gold mining naturally depend on the formation of the gold-bearing rocks. In some mines the ore is won through vertical shafts by winding machinery, and in others by incline shafts or horizontal tunnels in which tramways are worked by endless ropes. When the ore bed lies near the surface, it is sometimes found convenient to strip off the superincumbent mass of earth or overburden, and work the ore-bed as an open quarry. The river banks or terraces containing auriferous gravel and sand are hydraulicked—i.e., the banks are washed away by powerful jets of water, and the gold is saved by catching it in flumes or boxes containing mercury. All these methods open vast fields for the exercise of mining engineering skill and enterprise. On the proper development of the mine, as much as the actual gold contents of the ore, depends the commercial success of the venture. With ore carrying not more than one ounce of gold to the ton, the cost of mining and delivering the ore at the mill should, in no case, exceed 12s. per ton.

Crushing the Ore.

The battery should be under the care of a practical mechanical engineer. It is not necessary that he should have had formerly much experience in batteries, but it is necessary he should learn the wearing qualities of different metals used in the battery. The battery is usually a mechanical arrangement of enormous hammer, which falls from 80 to 100 times per minute, and the iron heads are subject to enormous tear and wear. The chief subject for the consideration of the mill's superintendent is the life of the wearing parts of the mill. Having followed the ore to grass, as the miners call the surface, and delivered it to the mills, the next work to be done is to crush it fine enough to liberate the particles of gold, and this is done by passing it first through a stonbreaker in which the larger pieces are reduced, and then by crushing it further in a stamping battery or other pulveriser.

The battery is flushed with water, and the finely divided ore or pulp is carried through the stamps' gratings and on to copper plates, over which it flows in a broad thin stream. The surface of the copper plates is coated with mercury, which forms an amalgam, and this amalgam catches much of the larger particles of free gold which passes over them. The amalgam is scraped from the plates at intervals, usually of a month, and heated in a retort so as to separate and recover the mercury and the gold. This operation is called the "clean up." Unfortunately, not all the gold is caught on the plates, but a large percentage is carried away in the sand or clay tailings or in the water, and at this point again a knowledge of the enclosing rock structure, and of the chemical and physical condition of the material carrying the gold is necessary for success in gold saving. If the gangue or stony matrix of the gold is felspathic in character, the felspar is reduced to clay by the stamping, and the water flushing the mill first deposits the sand in the water channel or launder at the end of the tables, but carries off the clayey or flocculent matter to a greater distance. This separation of sand and clay increases the difficulty of the after treatment of the tailings. With the sandy tailings there is a chance of recovering some of the gold by working them over again, but with the clayey tailings or slimes, as they are called, it is difficult to deal. There is no greater thief of gold in the mill than the clay.

Take a ton of clay from a brickmaker's clay puddle, such as can be seen any day near London, add to it half an ounce of gold dust or gold leaf, and imagine the difficulty of recovering the gold from such slime. The water used for flushing the mill is, moreover, itself a robber of gold. When the stamps used in crushing the ore strike very small pieces of the contained gold, they may convert those into gold leaf. This gold leaf is called "float gold," as it is apt to float away with the water, and so escape the possibility of being caught either by the mercury or by any other process of extraction. The cost of milling the ores, where water power or cheap fuel is available, may be set down as 1s. per ton, and if operations stopped at this point, it would mean that 1s. had been spent in obtaining, say, 40 per cent. of the contained 1 ounce per ton, or equal to 6 to 8 dwts. gold, worth 2s. 6d. to 3s. Unless for operations conducted on a

very large scale this is, as a rule, too small a margin to pay capital and general charges. By grinding the tailings in pans with mercury, and by other expensive contrivances, at a cost of, say, 8s. per ton, a further yield may be obtained. Mechanical and amalgamating methods may with some special free milling ores get a very large extraction, but generally the result does not exceed the 50 per cent. stated above.

A resume of the mining and extraction of the above 50 per cent. cost would be:—Mining, 12s.; milling and amalgamation, 6s.; pan treatment of tailings, 8s. Total cost £1 6s. Value of 10 dwts. fine gold equals £2 2s. 4d. Profit, 1s. 4d. The figures of costs given above may often be reduced, but should never be exceeded. If they are exceeded something must be wrong with the arrangements of the mines or works that calls for explanation. These *pro forma* costs are applicable, as a whole, principally to mines carrying 1 ounce of gold to the ton of rock. It is believed that there are vast deposits of such rock. The costs are not applicable, as a whole, to other varieties of gold mines, such as those carrying many ounces of gold to the ton, or where the gold is found in combination with silver.

This was the stage reached a few years ago by ordinary mines before the introduction of the chemical process of extraction of gold to be subsequently described. A few favoured mines made more profit than indicated above, but the greater number had a hard struggle for existence.

As the profit shown for 1 ounce ore presents too small a margin to pay general expenses and capital charges, and leave sufficient for the contingencies to which all mining properties are more or less liable, mineowners have long looked for a process capable of extracting the 50 per cent. of gold usually left in the tailings of sand and clay. In the hope of such a process being discovered, many mineowners have for years past stored up their tailings for future treatment, and those who have done so are now reaping the fruits of their prudence, as, within the last year or two, a chemical process capable of recovering 80 to 90 per cent. of the gold contents has been brought into extensive operation.

Around the crushing machinery there still clings too many antiquated methods. The Californian stamps for crushing the ore were an improvement in details and adaptability on the old Cornish mill used in tin stamping, which has been in vogue since the 17th century. The catching of the gold on copper tables has been, and is even now, under the care of an officer usually called an amalgamator. A good amalgamator, diligent at his work, possessed of a keen observation, and strictly honest and sober, might after the course of many years be able to save 30 to 40 per cent. of the gold contained in the ore; but this was obtained by long and special experience, and was not the result of any scientific method of saving the gold. Such men were always difficult to obtain. He was more of an artist at his work than a workman, and reminded one of the type of man employed at the refining process of copper in the Swansea furnaces, and whose precise vocational science has not yet been able to define.

A similar type of person in a different employment was the old-fashioned dairy maid, now long retired to the moorland farm, if not, indeed, wholly extinct. She tested progress of the operation by the taste—if her palate was clean she made good cheese; if not, the cheese was spoiled. Now-a-days the operation is regulated by readings of the thermometer.

All empirical methods of working any business must eventually give way to scientific systems. It would seem as if, till quite recently, the gold mining industry has been left far behind in the march of improvement. The history of abortive processes of gold saving is a veritable record of struggles in the Slough of Despond. If any one will refer to Lock's excellent book on Gold, he will find there a long catalogue of processes which are suggestive, but not practical in their application. The only rude process which was partly successful was the grinding of tailings by the Mexican arastras or in pans as indicated above.

At this point it may be mentioned that mines are often situated where there may be sufficient water for washing the ore, but where there is not sufficient fall in the water level to supply power to drive the mills, and where the other source of power, fuel, is scarce. Until recently, such mines could not be worked at a profit unless the ore was exceptionally rich, but electrical science has made such strides within the last few years that power generated at a distance of many miles can now be transmitted by electric cables, and utilised at the mines with a comparatively small percentage of loss of efficiency in transmission, with the result that operations can be carried on at a profit which formerly were impracticable.

(To be Continued.)

BE KIND TO THE LITTLE ONES.—There is no tyranny so hard to bear as the tyranny of parents who, without meaning to be cruel, do not understand their children. How continually do we find a child punished simply because it is fretful. It does not seem to occur to some parents that in nine cases out of ten a child's fretfulness arises from ill-health or from some temporary ailment. But this is assuredly true, and, instead of punishing their children, parents will do well to take steps to keep them healthy and strong. They will not find this difficult if they take care to keep Holloway's Pills and Ointment always by them. These are remedies which never fail.

D. P. & Co., after a great number of careful experiments have so improved and perfected the Huntington Mill that it must now be classed among the greatest inventions of the age. The excellence of its work is undoubted, and its superiority over Stamp Mills will soon cause a revolution in its favour for Quartz Crushing. Its first cost, and cost for freight and transit is much less than for stamps, it absorbs about half the power for the same output, and is continually crushing. It can be fixed and started in 12 hours, requiring for foundations only two pieces of timber 12 in. by 12 in. by 14 feet long, is more reliable than stamps, and has perfect delivery. It is used to its greatest advantage on gold quartz, for, because of its excellent amalgamating properties, it catches about 75 per cent. of the gold put into it.

Full Particulars on Application to
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THE SALISBURY GOLD MINING COMPANY, LIMITED.

CAPITAL £100,000, IN SHARES OF £1 EACH.
FULLY PAID.—UNISSUED £100.

(By a Correspondent.)

THE property is close to Johannesburg, between the Jubilee and Wemmer properties, and consists of 16 main reef claims, eight of which are outcrop and eight dip claims. It extends in length for 1200 feet along the main reef outcrop, and in breadth to its southern dip boundary for 800 feet. It also owns several hundreds of acres of valuable deep level claims to the dip of the village main reef. This deep level property was acquired at a nominal price, and a large sum has been offered and refused for it. The reefs running through the property are the south reef, main reef leader, main reef, and the north reef.

The south reef is the one which has been opened up, but work has also been done on the main reef leader, which is 60 feet away. The ore reserves from the south reef and main reef leader, already opened up, are sufficient to supply the present battery for three years. No other mine on the Rand is so far ahead of its present milling capacity. The 10th level has now been reached, and development can, if required, be carried on in six levels, as only those above the fourth are driven to the boundaries. As I have frequently pointed out, most mines on the Rand have encountered a poor zone between the oxidised and pyritic ores, and the Salisbury has been no exception to the rule, for in the higher grade levels the ore was extremely rich, and in the lower levels now being developed, the ore has again become quite as rich as ever, while the extensive system of sorting out the waste ore will still give better results.

The following are the returns with a 20 stamp battery for the current year:

	Tons milled.	Ozs.	Dwts.	Tons.	Ozs.	Dwts.	Profits.
January	2,100..	1,239..	11:80..	1,430..	471..	6 59..	£ 694
February	1,916..	996..	10:40..	1,035..	304..	4 66..	—
March	2,272..	1,232..	10:85..	1,430..	528..	7 39..	1,143
April	2,100..	1,036..	9 86..	1,365..	443..	6 50..	675
May	2,114..	1,014..	9 60..	1,430..	571..	8 00..	606
June	2,183..	1,266..	11:57..	1,495..	602..	8 06..	2,647
July	2,100..	1,222..	11 64..	1,365..	493..	7 23..	1,695
August	2,000..	1,347..	13:37..	1,365..	461..	6 76..	1,811
September	2,014..	1,259..	13:47..	1,235..	636..	10:35..	2,640

It will be observed that the company has only 20 stamps, and that it is developing 3 tons of ore for every ton it is at present crushing, consequently profits are much reduced. While in the upper levels a yield of 19 dwts. crushed was obtained from the mill, the poor zone only gave about 10 dwts. This poor zone has now been passed through, and mill returns are now over 13 dwts. per ton, with the absolute certainty that the ore already opened up down to the 10th level will from ascertained value give a still higher return. This again will be increased by the new method of sorting about to be introduced. It will also be noted that the tailings are of very high value, the last return showing 10:35 dwts. per ton, giving a profit of about 25s. per ton from tailings alone. 20 new stamps are now being erected of the heaviest pattern, which will crush an additional 2500 tons per month. The present cyanide plant is considerably greater than the present output of the battery, so that no great additions will be required to these works to meet the increase in crushing. Although during the past and current year there have been great rises in most of the Rand shares, yet these shares have not risen to any great extent, and the present appears to me to be an opportunity to secure them for a rise of several pounds.

On the adjoining property—the Jubilee—the main reef is 20 feet wide, of which large sections are payable, and here also it is expected to find sections of this immense body of conglomerate payable. The angle of dip of the beds is very steep upon this property, adding largely to its life.

Mr. Branton Symons, M.I.Civ. Eng., F.G.S., sailed on Thursday last in the *Balaarat* for Coolgardie.

Mr. C. Algernon Moreing, of the firm of Mears, Bawick, Moreing and Co., writes to say that he has resigned his position as Chairman of the London Board of the Mozambique Company. This step has been taken owing to Mr. Moreing not approving of the present management of the company.

FURTHER EXPERIMENTS ON AMORPHOUS GOLD.*

By HENRY LOUIS, F.G.S.

THE present paper comprises two parts, which have but little connection with each other. The first is practically a continuation of the investigation on the specific gravity of gold liberated by means of acids from its alloys, on which subject I had the honor of presenting a brief note to the Institute in 1893 (*Trans., xxii.*, 117); the second describes a series of experiments on the behaviour of amorphous gold under the action of heat.

By the kindness of Professor W. C. Roberts-Austen, C.B., F.R.S., chemist to the Royal Mint, I have been permitted to conduct these experiments in the Mint assay-office, all the splendid resources of which institution were freely placed at my disposal. I desire at the outset to express my obligations to Professor Roberts-Austen and to all the staff of the Mint assay-office for their kind assistance at all stages of my experiments.

The Specific Gravity of Gold in Alloys.

In the note already referred to, I published my discovery that the gold left on dissolving out the silver from an alloy of gold and silver (which I shall here term "residual amorphous gold") has a higher specific gravity than ordinary molten gold. I also pointed out that I had worked on very small quantities of material and with balances and weights on the accuracy of which I could not implicitly rely, and that in so far my numerical data were inconclusive, although I had but little doubt of the correctness of the broad fact. The experiments now recorded were made under the most advantageous circumstances, and with various refinements. Particularly, I found that the ordinary form of specific gravity bottle was responsible for several small sources of error; and I accordingly designed an improved form (*Journal of the Society of Chemical Industry*, April 30, 1894, No. 4, vol. xiii.), which I used for this work. The weighings were always made in air and no correction for the weight of air displaced has been made; this would, however, be a very trifling amount when working with so dense a body as gold.

A. Residual Amorphous Gold from Gold-Silver Alloys.—A batch of cornets was kindly prepared for me by Mr. F. W. Baily of the Royal Mint assay-office. These were prepared in the manner invariably used for making assays of gold bullion, and were perfectly normal cornets, the mode of procedure being as follows: $\frac{1}{2}$ gramme of gold is alloyed with $1\frac{1}{2}$ grammes of silver and a little copper, by cupellation in 4 grammes of pure lead-foil. The resulting button is rolled into a fillet, coiled up, and then parted in platinum cups in platinum boilers, by means of two boilings in dilute nitric acid of specific gravities 1.26 and 1.32 respectively. The gold thus obtained is 999.7 parts per mil. fine. The cornets prepared for me in this way were repeatedly washed with hot distilled water, boiled in water and allowed to cool *in vacuo*. Two batches of 28 and 26 cornets respectively were operated on, and the specific gravity of each batch was determined by means of the specific-gravity bottle and by weighing in a light glass cup suspended by means of a fine silver wire in a beaker of water. Each lot was then dried and annealed in the muffle in the ordinary way, and its specific gravity was again determined.

Finally these annealed cornets were fused under a layer of borax-glass, and, after careful washing and cleaning, the specific gravity of the molten gold was determined.

The following were the results obtained:

	I.	II.	Mean.
Specific gravity before annealing	19.517 ..	19.505 ..	19.511
" after	18.729 ..	18.728 ..	18.7285
" after fusion "	19.200 ..	19.173 ..	19.1863

These results, the accuracy of which I have no reason to doubt, show that the residual amorphous gold has, in spite of its very much greater bulk, a higher density than gold which has been fused, whilst the annealed cornet is markedly lower in density than the same gold. For this latter phenomenon I am unable to suggest any explanation, unless it be that the gold sponge on contracting may completely enclose some cavities, and have, therefore, a cellular structure.

B. Alloys of Gold with Other Metals.—a. Two alloys of gold and copper were prepared in approximately the proportions of 1 to 3 and 1 to 7 respectively. These were rolled into strips, cut into small pieces, annealed and parted in nitric acid. The gold in the richer alloy retained fairly the shape of the original pieces; in the poorer alloy it broke up, and occupied a bulk fully double that of the original alloy.

b. Three alloys of gold with lead were prepared in the approximate proportions of 1 to 3, 1 to 4, and 1 to 6. All these alloys were gray, granular, and very brittle. They were pounded to a coarse powder and parted by means of nitric acid. In each case the gold formed a loose, spongy mass, very bulky indeed, occupying at least six or eight times the volume of the original alloy.

c. Two alloys of gold with zinc in the approximate proportions of 1 to 3 and 1 to 7 were prepared. These alloys were difficult to pour, but proved to be fairly malleable, so that they could be rolled into strips and then cut into pieces. These were hard, grayish-white, with a granular fracture. They were not annealed. Parting was commenced with dilute sulphuric acid, but it was not satisfactory owing probably to the presence of small amounts of lead in the zinc. The acid was, therefore, poured off and the residual metal well washed, first with water and then with ammonic acetate, to dissolve any sulphate of lead that might have been formed. After washing again, the parting was completed with dilute nitric acid, the action of which was almost explosive in its violence. The pieces of residual gold retained in each case the shape of the original pieces of alloy, and did not break up at all.

The specific gravity of the residual amorphous gold was determined in each case with all due precautions, and the results obtained are tabulated below:—

Alloying Metal.	Composition per 100.		Specific Gravity.	Fineness of Residual Gold
	Alloy.	Gold.		
a. Copper	75.09	24.91	19.666	—
"	87.46	12.54	19.567	—
b. Lead	75.36	24.64	19.786	999.3
"	80.02	19.98	19.122	999.0
"	85.78	14.22	19.751	999.25
c. Zinc	73.66	26.34	18.854	999.9
"	87.85	12.15	18.910	999.4

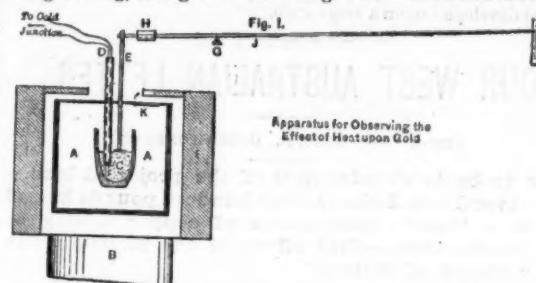
The fineness of the residual amorphous gold was determined for me by Mr. F. W. Baily, the results given being the mean, in each case, of two determinations. It will be observed that the richness or poorness of the original alloy does not seem to affect the specific gravity of the residual amorphous gold, whilst, on the other hand, this figure seems to be higher, the more completely the alloying

A paper delivered before the Bridgport meeting of the American Institute of Mining Engineers.

metals cause the liberation of the residual gold in the pulverulent form. The average of the specific gravity found was higher than that of ordinary gold, except in the case of the zinc alloy, in which the parting was troublesome and unsatisfactory, and the resulting gold impure.

Effect of Heat on Amorphous Gold.

A series of experiments was made upon unannealed gold with the object of discovering whether this metal, in passing from one state to the other, showed any points of "recalescence," similar to those obtained in heating and cooling iron. In the case of gold, there was no object in investigating the phenomena during cooling, seeing that the change in the condition of the



gold is produced during heating. The arrangement of the apparatus used is shown in Fig. 1, in which A is a rectangular box, made of cast iron, about $\frac{1}{2}$ inch thick. It is surrounded by the furnace, F, and heated by the powerful burner, B, the gas supply to which can be regulated to a very fair degree of uniformity. The box has an iron cover, with a mica window, K, through which the interior can be examined. In the box is suspended a crucible, C, containing the gold to be operated upon. The terminal wires, D, of a La Chatelier pyrometer of the usual type are inserted in the mass of gold, the wires passing to a cold junction, the temperature of which was taken at intervals during the experiment, and thence to a reflecting galvanometer, the deflections of which were recorded photographically by Professor Roberts-Austen's method.

(To be Continued.)

MINING NOTES FROM JOHANNESBURG.

By H. BUSH, M.E.

New Kleinfontein.

THIS property consists of 56 claims, 25 claims along the reef, by an average of about two claims deep. The mine is at present opened over a length of 20 claims, and driving to open up the remaining five claims will shortly be commenced. The water right owned by the company is one of the finest on the Rand, and consists of a substantial dam, containing from 40,000,000 to 50,000,000 gallons of water, deriving its supply from a permanent stream. The central shaft is being used temporarily with a view to connecting the levels, but will shortly be abandoned. The west incline shaft has been enlarged to serve as the future main hauling shaft for the western portion of the mine. A new incline shaft will also be sunk to work the eastern portion of the mine. The ore reserves at present in sight amount to about 65,000 tons. The value of the main reef leader is worth about 1 ounce to the ton by fire assay, and the width of the reef over 2 feet. The main reef will return about 10 dwts. from a width of reef nearly 3 feet. The average value by fire assay of the ore treated has been about 16 dwts., of which 78 per cent. is now being recovered. The cyanide works which started last May have yielded at the rate of nearly 4 dwts., so that the total recovery from all sources equals about 12 dwts. There are about 20,000 tons of tailings in hand. The immediate future does not call for any very heavy expenditure; the existing plant has been thoroughly overhauled, and is capable of doing good service for a considerable period. The ore reserves are being increased largely with an ultimate view of enlarging the milling plant. A further 15 stamps will be running at the beginning of January, making in all 65, and it is probable that within 12 months another 35 stamps will be added, making in all 100. A compressor is being erected which will run about 10 drills, but can be increased when occasion requires. A new winding engine and boilers are being fixed, and all machinery is in a state of efficiency. The present profits from 50 stamps show about £3000 monthly, and on an issued capital of £80,000 a return of over 40 per cent. This means over 15 per cent. on the present price of the shares, *viz.*, 50s. When the extra 15 stamps start running early in the new year a profit of £4000 monthly will be made, thus providing dividends at the rate of 50 per cent. per annum, allowing a reasonable amount for depreciation. It is only fair to assume that in the near future the value of the shares as an investment will be worth 80s. There are about 1,500,000 tons of ore in this property, and with a capacity of 65 stamps, this shows the life of the mine to be about 24 years. Assuming that the present returns be kept up, and there is no possible reason to believe otherwise, this will then give a return of £12 per share before the mine is worked out. It is the intention of the directors during the latter part of next year to increase the milling power by a further 35 stamps, making in all 100. The mine will be in a position to carry these stamps, the reefs being large, and systematic development being pushed ahead in preparation for the 100 stamp proposition; this means a monthly profit of over £6000 without allowing for a considerable decrease in the expenditure. Sooner or later, it is obvious that the dip claims must be acquired by the New Kleinfontein Company in the interest of the shareholders; these dips are owned by the Benoni Syndicate, and it is now that reasonable overtures might be made, otherwise in the course of 12 months the price required will be very much larger, and the value will increase from time to time till three times the amount will have to be paid to secure them. Negotiations are now going on with a view to an amicable arrangement. If everything is satisfactorily completed, the New Kleinfontein Company will have acquired the dips at an early stage without paying an enormous figure at some future date. The acquisition of these dips lengthens the life of the mine to over 40 years, and will give about two and three-quarter million tons of ore. In these dips the Chimes reef will also be found—this still further improves the prospects. Great credit is due to the management for the efficient manner in which all works have been carried out. This mine will, at no distant date, rank as one of the largest gold producers on the Rand. As a safe and sure investment I cannot too strongly recommend these shares at their present price. The mine is improving every day, and the output will be increased.

Banquet Gold Mining Company.

There is not the slightest doubt but that this mine will in the near future turn out a payable proposition. The pannings are daily improving, and from the lower levels now being opened up a result of about 12 dwts. to the ton can be expected. The mine is now let on tribute at a rental of £80 a month, and the

tributer has still 10 months to run. The returns from the plates have been increased from 3½ to 5½ dwts., and a further 3½ dwts. increase will be got from the new strike of the north reef, which is 1 foot wide, and gives pannings up to 20 dwts. This reef has only lately been found, and is untouched right through the old stope, and it can be estimated that 15,000 tons of this reef will be got from the footwall of the old stope at a cost of 2s. per ton less than the average cost of mining the other reefs. The cost of mining and milling is only 1s. 4d. per ton, and this is the cheapest on these fields. There are now three reefs in the property. The north reef, 1 foot wide; main reef, 5 to 7 feet wide; south leader, 3 inches wide; all of which have improved wonderfully lately. Cyanide returns show over 4 dwts., and, at a cost of about 4s., this leaves a profit of fully 6s. per ton, but it can be expected that this will improve to over 9s. per ton. There are about 1,000,000 tons of ore in this block, and it would not be surprising if it does not turn out as payable as the adjoining mine—the Princess. It would be advisable to those who hold these shares at high prices, to average at present price—1s.—as there is sure to be a reconstruction on favourable terms to shareholders, and with sufficient working capital, this mine will give a good account of itself.

Jumpers.

Upon the flotation of the Jumpers Deep Level, the above mine will receive two shares in the Deeps for five shares in the Jumpers for the Bowarplaats, which is owned by the Jumpers, and this should make the Jumpers shares worth £3 10s. The flotation of the Jumpers Deep is almost an accomplished fact, and the shares can be expected to go over par. The Gold Fields own the claims on the dip of this block, and it is understood that they are trying to amalgamate their block with the Jumpers Deep, but the Rand Mines, who own the Jumpers Deep, have not come to terms with them, and they should not do so as the Gold Fields block is too far away on the dip.

New Rietfontein.

On arriving in Johannesburg I called on the secretary and asked permission to visit the mines but was informed that no visiting orders were given to anyone, but if I made application in writing to the board probably my request would be granted. This I did, and when the board met I presume that my request was discussed, but my application has been treated with contempt, and not even an answer to my written application has been given. I can, however, ascertain particulars as to the state of the mine. The new find is of no importance, the output will be a few 100 ounces, extra perhaps for a couple of months, then this patch will be worked out; the reef has now flattened out and is very poor, and getting worse. This is a repetition of its position some months since.

Worcester Mine.

One of the best worked mines on the Rand; and now that the main reef has been found payable right through the property, the life of the mine can be estimated at about 15 years. There seems every probability that the present rate of dividends (70 per cent.) can be maintained, and these shares will in a few months advance 25 per cent. I think that it is a pet scheme of the directors of the Wemmer, Ferreira, and Worcester to amalgamate and take in the dip claims.

Geldenhuys Main Reef.

Mine opening out better every week, and the shares at par will return about 15 per cent., but this is a fair price for them, as the life of the mine is very short, and it is just on the cards that there will be an amalgamation with the dip claims.

Comet.

There are about 55,000 tons of ore in sight, and the erection of the battery is being rapidly shoved ahead, and excellent returns can be expected from this mine. The profits will amount to about 16s. per ton.

Kimberley Roodepoort.

From development work lately carried out, it is evident that the poor zone has been passed through, and payable results can be expected from the western portion of the mine.

Main Reef.

This mine is located in the poor zone, and prospects are anything but bright. The shares over 10s. are good selling.

TIN TICKETING.

A TICKETING for tin ores was held at Tabb's Hotel, Redruth, on Tuesday, with the following result:—

VALUES OF ORES SOLD BY EACH MINE.

	Tons cwt.	Per ton.	Value.
Dolcoath No. 1	15 0	£39 10 0	£592 10 0
do No. 1a	15 0	39 15 0	596 5 0
do No. 1b	12 0	40 2 6	481 10 0
Carn Brea No. 1	12 0	35 7 6	424 10 0
do No. 1a	12 0	35 12 6	427 10 0
do No. 1b	12 0	36 0 0	432 0 0
do No. 2	2 0	28 7 6	56 15 0
Wheal Grenville a	18 0	40 2 6	722 5 0
do b	18 0	40 15 0	733 10 0
Tincroft	16 0	34 15 0	556 0 0
do	15 0	34 7 6	515 12 6
do	3 0	16 15 0	50 5 0
South Frances No. 1	13 0	39 17 6	518 7 6
do No. 1a	13 0	39 17	

SPECIAL CORRESPONDENCE : COLONIAL AND FOREIGN.

OUR PARIS LETTER.

South African shares.—A financial operation in the Transvaal.—The mineral riches of the French Congo.—The future of Madagascar.—Ironstone mining.

In their anxiety to place money in undertakings that offer every guarantee of safety, French investors are inclined now and then to be hypercritical in their estimate of the South African gold mining companies. There is no other class of security on the market of sufficient promise to attract their attention, and, as money is very plentiful, it might be thought that investors would show particular readiness to take up South African scrip. But the bitter experiences of the past few years have taught them an excess of caution which promptly checks any tendency that now and then manifests itself towards a heavy speculation in mining properties. At the same time it is not considered to be an altogether satisfactory testimony to the value of new undertakings that they should be promoted on the English market and under English law, which is admittedly laxer than that which governs now companies in France, and offers greater facilities for dishonest practice. Consequently, new companies that make their appearance upon the Paris Bourse are looked upon with anything but a favourable eye, and one or two attempts to secure support for such concerns during the past week have entirely failed. Until their knowledge of the resources of South Africa is more complete than it is at present, investors are not likely to give much support to concerns other than those already existing, especially if the results of working in the past should have been particularly profitable. It is, of course, impossible to reconcile this spirit of excessive caution with the natural desire which exists among French investors to secure large returns upon their outlay, and this gives rise to a certain feeling of uncertainty which betrays itself in the position of South African Scrip. During the past week investors have been hesitating between taking up the scrip of "deep level" and outcrop concerns. At first the "deep level" scrip was bought freely until some doubts were expressed as to the economical exploitation of these mines, and then after having a flutter with the surface companies investors have returned once again to the deep levels. For nearly all classes of scrip there are, indeed, plenty of buyers, though speculation is not sufficiently brisk to force up the values beyond the level which has remained unchanged for the past week or so.

Some of the French financial houses are trying to make the most of the present activity in South African gold mining, but the opportunities of profitable dealing upon an extensive scale are less numerous now that the English capitalists have skimmed the cream, as it were, off the Rand undertakings. The Credit Lyonnais, which has a representative now in South Africa, and which has identified itself strongly with the late French boom in Transvaal gold mines, is reported to have sunk £500,000 in the purchase of Ferreira shares. The terms of this transaction are not made public, but at the present prices of Ferreira shares, 325 frs., it does not look as if their purchase could be made a very profitable speculation. There are, indeed, many critics of the Rand mines who declare that the prices at which the shares have been placed on the Paris market are far too high. The French public, they declare, have been utilized for the "off-loading" of their scrip at extravagant prices by financiers in England and South Africa. There is undoubtedly some authority for this charge in the prices which certain South African ventures have forced up in Paris, but its general truth remains to be proved. The banks and syndicates which are leading the market in this direction include some of the astute financiers in Paris, and they are acting upon the ablest and most disinterested expert advice in Johannesburg. At present, at all events, there is every prospect of a further advance in the capital value of the Rand stock available in Paris.

From statements lately made before the scientific societies of Paris, by M. Maurice Barrat, an engineer who was sent out last year to Africa on a geological mission, it seems as if the French Congo possesses many kinds of minerals in fair abundance. There is very little gold or tin; in fact, during the course of his investigations he could only discover the barest traces of these metals. But copper, lead, zinc, and silver were found in considerable quantities along the coast line for 300 or 400 kilometres. Iron and manganese exist in great abundance everywhere. No coal was found in any of the localities examined, but there is plenty of lignite near the Cristal Mountains, in the neighbourhood of which was found a great deal of mineral oil. Extensive salt springs and salt beds afford a valuable material for barter, while all sorts of slate, granite, and other building material are found in almost inexhaustible quantities. M. Barrat thinks that these resources might be developed to a very considerable extent if carried out in a systematic manner, and would make the French Congo one of the most profitable of the French colonies. It is to be hoped that this estimate will be applied to other parts of the Dark Continent, which seems destined to largely increase its reputation as a producer of minerals.

The influence of France in South Africa has not been particularly conducive to the development of the mineral resources of that country if one may judge from the difficulties which have arisen through French opposition in Mozambique. Whether or not it will ever be possible to reconcile the conflicting interests of French and English capitalists in South Africa, it is certain that this influence will increase considerably in the next few years. The expedition which is to take place to Madagascar marks a very great step towards the establishment of the French in the southern part of the Dark Continent, and from Madagascar it will be possible to extend French influence much more effectively than from Paris. The point that is most prominently brought forward in this occupation of Madagascar is the future of the mineral industry of that island. There can be no doubt about the existence of large quantities of gold and other metals in Madagascar, and their presence is shown not only by the primitive trade now being carried on, but also by the researches of geologists who have made quite an exhaustive survey of the metal-bearing districts. It is a question of no small importance whether the French occupation will be favourable to the development of these minerals. No doubt, in the flush of victory, investors will be ready to place any amount of money in undertakings intended for the development of the mineral resources of Madagascar, which will be for the time being the El Dorado of France, but this excess of zeal will be more harmful even to systematic working than a dearth of capital. If Madagascar becomes a second Tonkin, where it is sought to exploit the native riches by means of English capital under French control, it is not likely that much profit will be secured out of the island's resources.

The pig iron producing industry of France has been growing in importance for many years past, and the districts of Longwy and Nancy do a very considerable trade with Belgium and Germany. In view of the scope that is offered for an extension of pig iron production, several new furnaces are being built in the Meurthe-et-Moselle, where it has been found necessary to open new ironstone mines. Several concessions for new mines have lately been secured, and they will be started at an early date. It is expected also that this growing consumption of iron ore will result in the working of the considerable deposits that exist in Tunis, and which are only waiting a concession from Government in the matter of transport charges to enable them to be developed upon a large scale.

good fortune as private as they can, and only here in Perth one day last week there was a glaring instance of this injurious, but perhaps not unnatural, want of confidence on the part of the men who have been lucky in their prospecting. A party of four weather-beaten men came into the City and put up at Musson's Hotel. They gave no information as to where they had last come from, but informed the landlady that they had been for more than a twelvemonth out "prospecting for gold." So far from having wasted their time they were able to show Mrs. Musson a large trunk full of the precious metal, which they banked at different times so as to avoid causing a sensation. The total weight of this treasure was between 3000 and 4000 ounces.

OUR WEST AUSTRALIAN LETTER.

(FROM OUR SPECIAL CORRESPONDENT.)

The probable abandonment of the projected loan.—Several new finds.—A four hundred pounds kernel in a "nut"—Resumption of copper mining at Northampton.—Bad effects of the looting at the "Wealth of Nations."

PERTH, OCTOBER 20TH.

PUBLIC interest here for the last week or two has been almost wholly centred in politics—a rather rare occurrence in this colony. Even the news of several sensational gold finds has quite failed to draw attention from a negligible squabble going on between the two branches of the Legislature over the Loan Bill and one or two other measures, which at the present time of writing seems likely to result in the former being withdrawn by a Government indignant at having its money arrangements interfered with by the Upper Chamber. The quarrel is briefly this. The Act authorising Ministers to borrow a million and a half sterling having been passed almost unanimously by the Legislative Assembly, was duly sent up to the Council, which is our equivalent for your House of Lords, for their approval, which, according to the spirit of the constitution, should have been given as a matter of course. Their Councilships, however, without giving any reasons for their decision, simply returned the Bill with a "suggestion" that the amount should be materially lessened, and that certain railway schemes for which the Cabinet is responsible should be abandoned. In answer to this the Lower House, with promptness and unanimity, sent the measure to the "other place" again, with a curt expression of "regret" that it could not accept the said suggestion, and there the matter rests for the present. Indignation meetings have been held in support of the Government and against the Council; and, inasmuch as neither party to the dispute intends to give way, the upshot is likely to be, as I have said already, that those few tons of gold we had intended to oblige you by taking off your hands will have to remain in your own safe custody for the present. It is generally held to be a great misfortune to Westralia that at this crisis in her history her rulers should have taken to "falling out by the way" instead of working together with a will, in generous rivalry for the welfare of the country.

The latest intelligence from Coolgardie is encouraging so far as new prospects are concerned, but a rather ominous silence about an old favourite mine or two has created some uneasiness. The Londonderry everyone agrees is as brilliant a property as its proprietors have from the first believed it to be, but as regards "old" Bayley there are many head shakes, and there are not wanting profane hands to stretch out warning fingers, *in re* the sacred Wealth of Nations. The fact is that the old adage about no news being good news is not in Perth at all events accepted as being of universal applicability to gold mines. The mysterious sensational find somewhere on the Coolgardie field is beginning to cause some irritation with the reputed discoveries. There has just been put out for exhibition at the offices of the *Gold Fields Courier* some marvellously rich specimens of small pieces of quartz sparkling all over with the precious metal, but to all entreaties to divulge the whereabouts of their origin, the discoverer returns a riddling "wouldn't-you-like-to-know" sort of answer, and reminds his inquisitors of the conduct of the miners at the Wealth of Nations.

Of what is known as Menzies Find authoritative information is now to hand, Messrs. Saunders and Darlot having returned a day or two ago from a visit of verification, with a large number of very rich specimens, and a firm belief that the reef from which they got them is one of the best for battery purposes which has been discovered yet. There is also news to hand of a new rush about 125 miles from Hannans, of which some wonderful results of alluvial gold seeking are recorded, one party of four men having picked up over £70 worth within a couple of hours. Downey's Find of Siberia is also proved to be a genuine affair, the lucky discoverer having three days ago brought in and deposited at the Bank of Australasia some exceedingly rich specimens of quartz, and 272 ounces of gold he had dollied out on the ground. The Municipal Council are still wrangling with the Government at Perth, their latest resolution being to have nothing to do with the responsibility of providing water for a "floating population," as the one at Coolgardie is, and, consequently, they refuse the offer of the loan from the Treasury for that purpose. A good deal of machinery intended for Coolgardie is said to have gone down on the ill-fated *Rodondo*, of the loss of which you have doubtless been informed by cablegrams.

From the Murchison and also the Dundas Fields, there is nothing but good news, if the continued scarcity of water be excepted. On the former, at the claim known as the Fair Fight, a bit of luck in the shape of a cake of pure gold, weighing over a hundred ounces, literally tumbled out like the kernel of a nut from a block of stone, when the latter was cracked by the blow of a heavy hammer. The long-awaited-for public battery at Cue has at last got to work, and the result of the crushing of some of the accumulated stone lying on the company's premises have given the utmost satisfaction to the owners. All over the extensive field there is the greatest activity, machinery being erected on various claims, from the Star of the East and Mount Vrango, to the Magnet and the Yalgo, and at the last-named a valuable mine has just been opened which, it is said, surpasses the famous Emerald, which by the way is giving better returns than ever. At the New Yalgo pit a parcel of stone of a little less than 1 cwt. gave over 100 ounces of gold when dollied out the other day, and the supply of quartz almost as promising is said to be apparently inexhaustible.

The good folk of Northampton, a town in which business has been for a long time extremely dull, are in high spirits owing to the resumption of copper mining in their locality by a London company of large resources, who have instructed their manager to spare no expense in doing his work thoroughly.

The evil effects of the conduct of the diggers at the Wealth of Nations are continually making themselves apparent in various ways. A mania for secrecy seems to have taken possession of discoverers, which is greatly to the loss of the working miners as a whole. Several senders in of large parcels of gold from different claims on the Murchison keep their

MEETINGS OF MINING COMPANIES.

COETZEESTROOM ESTATE AND GOLD MINING COMPANY, LIMITED.

THE second annual meeting of this company was held at Winchester House, on Monday, Mr. SYDNEY CHAMBERS, Chairman, presiding.

The SECRETARY having read the notice convening the meeting, The CHAIRMAN said: Gentlemen, the accounts which have been in your hands for some days are down to the 29th September, which, with your permission, we will take as read. When we met on the 18th December last we were anxiously awaiting the completion of the erection of the cyanide plant, and were expecting results as promised by the manager in January. On the 31st May the following was sent you, and as it embodies the information that made the board decide to shut down the battery, I will read it:—"May 31, 1894.—Dear Sir: At the annual meeting, held in December last, the directors explained to you that they were awaiting the completion of the cyanide works, and a letter from the manager was sent, promising actual results from this process in two or three weeks. Various reasons for delay have since reached the board, but paying and definite results were promised in March. Before this the returns sent home were more and more unsatisfactory, and the board could not understand, from the apparent poorness of the ore, how Mr. Evans could carry out his anticipations of profit which he continued to confidently assert. Under these circumstances (on the 10th March) instructions were sent to the agent in Barberton to visit the estate, and advise what should be done. His telegram arrived on the 18th April, as follows:—"Advise stop all operations except cyanide about end of the month." Meantime, on the 9th April, a cable of the March cyanide work arrived, which was most disheartening:—"450 tons crushed, nearly 3 dwt. per ton on the plates (say 62 ounces), 1000 tons treated by cyanide, 1½ dwt. per ton (theoretically 75 ounces, but in fact only about 44 ounces standard). Then on 10th May a cablegram reached us giving April crushing and cyanide work, which latter had been estimated by the manager as double that of the previous month:—"360 tons crushed, 3 dwt. per ton on the plates (say 54 ounces); 1400 tons treated by cyanide, 1 dwt. per ton (theoretically 70 ounces, but in fact may be only 44 ounces standard). I need hardly say that the board at once ordered all expenditure to cease, and called the largest shareholders together to confer with them as to the future. At this meeting the full report of the Barberton agent was read, in which he confirmed his advice by cable, and estimated that to produce 'about 65 ounces of fine gold the cost had been about £11 10s. 9d. an ounce,' except for a certain amount to be allowed for cyanide in stock of solution. I think it will now be instructive to look back upon the results obtained by the old company, from which good results the board naturally expected better would follow the new management, and also that they would be considerably augmented by the addition of the cyanide works; the results were as follows:—

	Tons.	Ounces.	Realisation.
From July, 1891, to June, 1892, old company	... 7,957	... 1,841	£7,201
From July, 1892, to October, 1892, new com., old management	2,047	404	1,580
	10,004	2,245	8,781

But from Nov., 1892, to June, 1894,
including scraping plates,
new management

... 8,509 ... 1,221 ... 4762

Gentlemen, it is not my desire to attach any blame to anyone that is not present, but I intend very clearly to prove to you that neither Mr. Busby nor I were responsible for the late management. We were elected by the committee of shareholders conjointly with Mr. Gundry at the time of the reconstruction, the two other directors being subsequently elected by yourselves. At the outset considerable delay was occasioned, and much valuable time lost, because these gentlemen were not appointed earlier. The first question decided by the full board was the appointment of a manager, and I think it due to Mr. Busby and myself to state that we were most strongly opposed to the appointment of your late manager, and used every protest in our power against it; our reasons were that we were desirous of using the limited capital at our command in the most economical manner, and we did not consider we were warranted in paying the large salary it was proposed to give, and also because Mr. Evans said he had had no South African experience. However, our influence was out-voted, and the appointment being concluded, we supported the manager loyally; the results of the management is known to you. We naturally feel that the appointment being entirely due to Mr. Stephens (the then Chairman) and Mr. Gundry, that these gentlemen should in duty bound have remained members of your board, and not have retired as they did, and leave the whole responsibility on those who had opposed their actions. I may here also state that they were anxious to make a second appointment of a gentleman who had never been on a gold mine at a salary of £300 per annum, to assist the manager, but this appointment was not carried out. I have shown you the results of the work of the old company, and the serious falling off from November, 1892. I would now like to point out to you the yield which we were led to believe we might fairly expect from the old tailings. The secretary tells us that the first manager of the old company stated the average assay was 9 dwt. per ton, and that the late Mr. Davey, who was manager for the first four months of the existence of the present company, valued them at 7 dwt.—in fact, he stated that he had extracted 6 dwt. 2 grains per ton from them in the pans. Then Mr. Evans, the late manager, when recommending the erection of the cyanide plant, said that 14 samples gave an average assay of 7 dwt. 18 grains, so that we fully expected that the cost of the cyanide plant would be paid for by the gold that would be extracted from the old tailings, of which we were advised there were about 5000 tons, but the actual results were so disappointing that 3000 tons treated only yielded 96 ounces of gold, and seeing that both the mill and cyanide works were being worked at a loss, we saw no other course but to shut down and terminate the agreement with the manager. I have lately returned from South Africa, and whilst there visited the property, and speaking only as a layman, I must confess I did not see that the erection of such a large cyanide plant was warranted. All along the board had expressed a strong opinion that the plant was too large, but the manager replied that he could not see his way to make profits with a smaller one. Whilst there I arranged with the local agent what I considered the most economical plan for caretaking—that was to engage one white man to look after the machinery, &c., and prospect for alluvial, from which source a large amount of gold has been procured, previous to the property coming into the original company's hands, in the hope that by so doing he might probably be able to pay expenses. The local agent has also been in correspondence with a gentleman in Johannesburg who knows the property, and who is anxious to rent

it on tribute, but Mr. Busby and myself, seeing that our term of office was about to expire, did not feel justified in committing the company to any new agreement, so that the offer is still open to be either accepted or rejected, or perhaps better terms secured. There is a vast volume of banket on one part of the property, which has always been represented as being very valuable. Mr. Davey went so far as to say that the average assay value of several samples was equal to 1 ounce per ton. I made a point of going to that particular part, where a drive about 50 feet long has been driven, and took three samples, which I brought home to be assayed, but the results were very poor, not averaging over 1 dwt. I may say that these samples were taken in the presence of both Mr. Evans and Mr. Bowness. I much regret that it falls to my lot to lay before you such an unfavourable report, but I must again say that the property is still unprospected, and hope that by some systematic prospecting that the present position of the company will be altered. As a matter of fact it has been shown that profits can be made, and I hope in the near future that that may again be realised. If any gentleman wishes to ask any questions I shall be pleased to answer them. I beg to move the adoption of the report and accounts.

Mr. T. GOLDNEY seconded the motion.

In reply to questions from Shareholders, the CHAIRMAN said an offer had been made to the company to work part of the property on tribute, but he thought more advantageous terms might be obtained. They had sufficient funds in hand to pay for prospecting for six or seven months.

The motion for the adoption of the report and accounts was then put and carried unanimously.

The CHAIRMAN said the next question was that the directors, Mr. Busby and he, retired in accordance with the Articles of Association and neither offered himself for re-election. He desired to retire on account of the distance away from town he resided, and also he had seen, unofficially, a scheme for the carrying-on of the company, which, if adopted, would not require his services. He must, therefore, ask them either to nominate two directors, or pass a motion reducing the number of the board to three.

Mr. BUCHAN also expressed a wish to retire through ill-health. He strongly recommended the shareholders to re-elect Mr. Chambers.

The meeting expressed itself in favor of the Chairman's re-election, and Mr. GOLDNEY proposed that Mr. Chambers be re-elected.

Mr. CHAMBERS said he was very gratified by their expression of confidence in him, but he would rather the matter remained in abeyance.

Mr. Ernest Wright was re-elected auditor.

A hearty vote of thanks, accorded the Chairman and the directors, closed the meeting.

THE KAPANGA GOLD MINING COMPANY, LIMITED.

The Coromandel section sold to a new company.

An extraordinary general meeting of the Kapanga Gold Mining Company (Limited) was held on Wednesday, at Winchester House, Mr. HENRY WILSON presiding.

The SECRETARY (Mr. W. J. Lavington) read the notice calling the meeting.

The CHAIRMAN said: The notice you have just heard read explains to you sufficiently the object for which we have invited your attendance here to-day. I think I shall best discharge the duties which devolve upon me by being as brief as possible. I will refer, however, though in somewhat desultory manner, to some of the salient points in connection with our property, as well as to the project which we are at present contemplating, and which will be submitted for, I hope, your unanimous approval. I don't think that any of the shareholders of this company can complain of not having received information regularly as to the progress which has been made in the development of the property. We have given you at all times information as promptly as it could be communicated, either through the columns of the Press or by sending at once to the Stock Exchange, and where, as it has happened in several instances lately, the information we received was of a special nature, we have sent you cards by post. You have also had the benefit of receiving a very important report made by Captain Hodge, who was sent out with a view to investigate the property and ascertain how far the policy that was being pursued was the proper policy, what were the effects that had accrued therefrom to the present time, and what suggestions he might think it desirable to make with a view to improving our position both at present and prospectively. If you have read that report, there will be no use whatever in taking up your time in making remarks in detail on the subjects covered by that report, because I should merely be recapitulating the various statements that were made there by him. The position, you are aware, is in every sense favourable, yet I venture to think that there are some of you gentlemen present who will be prepared to express some surprise that we should propose—after a period of only 14 months has expired since the company was reconstructed—a new departure. The only reason I can give you why we should do so—and I think you will accept it as a cogent and a valid reason—is this, that circumstances have changed very much since then, and all these circumstances have been for the better. The most cogent one is in connection with the marvellous progress and equally astonishing results made by developing one section of your property—that is, the Coromandel Special section, with which we propose to deal to-day. This company for years past has always been in less or more trouble from a financial standpoint. We have had a very large area of ground, and at all times too little working capital; so that, in point of fact, we have not been in a position to energetically develop the three sections of the property. The Kapanga claims extend for 100 acres, the Blagrove Freehold for 127 acres, and the Coromandel section is within a few rods of 40 acres in extent. When you gave us your capital by the reconstruction of the company last September twelve months ago you also gave us a mandate to employ that capital in a certain manner, that manner being the development of the mine in depth. We have done that; but the amount of money we had in hand did not justify us in taking over and working the Coromandel or Blagrove Freehold sections, which we have at all times been anxious to do. It was a matter of great concern to us whether we should be justified in diverting any portion of that capital to the development of either of the latter. Placing ourselves in communication with the gentleman who is responsible for the local management of the property, he, of course, expressed his anxiety to at once proceed energetically with the development of the Coromandel section; but we were in this position—that we did not feel ourselves justified in prosecuting with the money that you gave us for a definite purpose any other work than that contemplated at the original meeting. Captain Argall, always fertile in difficulties of this description, at once, and in order to comply with the conditions under which we held our lease from the Government, put the property out to tribute. If he had not done so there were those who were anxious that our privileges should be surrendered, and who would have stepped in and taken possession of this property, because, in the event of our having failed to fulfil the conditions under which we held our lease, there is no doubt in the world that you would have lost it. Now the position is in every sense satisfactory. The Coromandel section of the property has been developed by the tributaries; you have not been called upon to pay anything for it, and the proposition which will be submitted to you to-day—and I hope to be able to give you cogent and valid reasons for the acceptance of that proposal—is that we should part with the property for consideration which I will shortly make familiar to you. We thought it desirable, notwithstanding the constant and the careful attention we have given this project, to discuss the question with a number of the largest shareholders in the company. As a result of that happy thought, which originated with my friend Mr. Cecil Hartridge, we convened a meeting yesterday, which was attended by several of the largest shareholders and gentlemen from the Stock Exchange, and we discussed the various details, and the result is that we arrived at a conclusion which will be embodied in the proposition I will presently submit to you. Some of

you gentlemen who have read and carefully studied Captain Hodge's report will, no doubt, be anxious to put some questions as to the nature of the various statements made in that report. I am in a position to answer every question in connection with this company up to the present time; but, in view of the fact that he has recently returned from the property, I think it would be more desirable that you should direct any question relative to the present meeting to Captain Hodge himself, who will be prepared, I am sure, to give you every information on every possible detail. He will also submit to you specimens from various workings of the mine, and will tell you, from what he has seen, what is his opinion of the property, both present and prospective, and what, also, is his opinion of the project we are submitting for your consideration, and I hope, your approval. I don't think it necessary to take up your time any more, because, no doubt, some of the gentlemen on that side of the table will exercise the privilege which belongs to them as shareholders, and put questions which they may think proper. I am in a position to answer them, and I hope to answer them to your satisfaction. Therefore, with your permission, I will submit for your consideration the proposition which we have arrived at. It is to part with the Coromandel section of your property to a new company, which it is proposed to call the Hauraki Company, that being the name of the province in which it is situated. The capital of the new company will be £40,000, divided into 320,000 shares of 2s. 6d. each. To the Kapanga (the vendor company) will be paid the sum of £15,000 in cash and £8750 in fully paid up shares, leaving the working capital £16,250, which, I think, will be ample for the purpose of developing and carrying on the new property. We have been favoured with the opinions of a great many men who have had large experience in mining matters, and we have particularly been favoured with the opinion of Mr. Frank Lane, who, I believe, is present, and whose views on all mining matters are based upon a wide experience; and it may be some satisfaction to you to know that he has been good enough to promise to take an active part in the administration of the affairs of the new company. I venture to say that the opinion of such a man, and the administrative assistance he will give to the project, is the best guarantee you can possibly have for the success of any mining enterprise. Personally, I have to express my grateful acknowledgment to Mr. Frank Lane for the assistance he has given in this matter. Although I have had 23 years' experience in connection with mining matters both at home and abroad, I am always ready to become a pupil of such a man as Mr. Lane, and I am especially grateful for the guidance he has given us in this matter.

Captain HODGE supplemented his report by giving some additional particulars as to the mine. He had just returned, he said, from the property of which he had always had a very good opinion, although some difficulty had been experienced in carrying out its development on account of the want of funds. For the present he recommended the development of the 420 both north and south—two points which would afford ample working ground for some time to come. In addition there was the 300 to be extended south, and he saw no reason why shoots of ore equal in value to any yet discovered should not be met with there. The fact that the Government had contributed so liberally towards the cost of the borehole was proof positive that they entertained an excellent opinion of the property. He knew for a fact that there were several eastern reefs which must be bored through, which would, of course, be a considerable addition to the value of the mine. There would be very little difficulty in sinking the shaft to meet them. The Blagrove property was freehold, and was in a central position between Coromandel and Kapanga, and contained the same reefs. The work now being done upon it was simply a scratching of the surface. The expenditure of £5000 would open up a very rich property in this section. For the development of the Coromandel by the new company he recommended that a new tunnel should be driven from the other side of the hill so as to establish a communication with the old mine, that the wharf should be renewed, so that the coals could be delivered direct from the vessel to the mines, and the quartz from the mines to the company's own stamps—arrangements which would effect a considerable saving of money. Beyond this the property was sufficiently large to fully justify additional operations in other directions. After the mine was opened up in a fair way, which would take about 9 months, they might commence to lay open the reserves, which would take rather a longer time, so as to start working the mine properly. When this was completed he had little doubt they would find themselves in possession of a very rich and permanent mine. Most of the ground was virgin ground, so that it was hard to say what the result would be, but there were other mines in New Zealand not so favourably situated, which had paid dividends amounting to half-a-million in 12 months. The reefs were very similar to those of the rich mines in Coolgardie; in fact, the local people were in the habit of referring to the locality by that name. As to the Kapanga Mine, he had known it for many years, and had never been more encouraged by its appearance than at the present time, when if the recommendations of the directors were carried out, there could be little doubt as to its successful future. As already he had mentioned, the high opinions entertained of the property by the Government experts was attested by the liberality with which the Government had contributed towards the expenses of testing the property in depth. Evidently they were of opinion that the mine would turn out to be permanently rich in depth.

The CHAIRMAN, in answer to the questions of a SHAREHOLDER said that hitherto the Coromandel had been worked by tributaries, and out of the 15 blocks they had so worked, it was quite safe to say that 10 had yielded more than usual wages. With one unimportant exception the privileges of these workers would extend into January next. At present their rights allowed them to go down to the water level, 80 feet below the surface, and the manager of the company was, of course, preparing to sink in depth so as to undercut the lodes from which they had got such rich returns. At the 50 feet they had unfortunately met with water, and could not proceed without pumping machinery, and intimation had just come from the other side to the effect that it would soon be in operation. The telegram which had been received on Saturday was as follows:—"800 cross cut has been driven 49 feet. The 700 has reached the footwall of the new lode. Tributaries have crushed 18 tons of ore, with a return of 280 ounces of gold." The driving of the 800 cross cut was being carried further with a view of cutting the Kapanga and Scottie's lode at their junction. They were induced to drive another level at the 700, because in sinking the shaft from the 500 to the 800 a new lode was met with which was called the New Lode, although in point of fact the discovery was made somewhat earlier. With reference to the Coromandel the same telegram said:—"The pumping engine will start in a few days; tributaries have crushed 18 tons of ore for a return of 280 ounces of gold." (Applause.) The Chairman further said that there would be no promotion money in connection with this scheme, and no expenses would be incurred, which were not unavoidable. (Applause.)

Mr. INGALL thought the scheme of the directors a very equitable one, and hoped that a full opportunity would be given the shareholders in the Kapanga to subscribe for the shares of the new company.

The CHAIRMAN said that every shareholder on the Kapanga register would have the privilege of subscribing share for share in proportion to his present holding. The Chairman concluded by moving a resolution embodying the proposals.

Mr. LANE, in seconding the resolution, said that the call remaining unpaid upon the Kapanga shares was too small to render pos-

sible any adequate development of the Coromandel by the old company, and the scheme embodied in the resolutions before the meeting was the only alternative to another reconstruction. The scheme proposed was an excellent one in every way, and would put the Kapanga shareholders into a much sounder financial position, for not only the Kapanga property, but also the Blagrove, would be able to be worked, while it would probably be some time before the 6d. would be called up. If the success of the new company depended upon the directors there was no doubt it was assured, for it would be impossible to have an able set of gentlemen, or a board more thoroughly alive to the interests of the company.

A SHAREHOLDER enquired whether a better arrangement would not be to issue debentures.

The CHAIRMAN replied that this matter had received the full consideration of the board, but had been found to be impracticable. The scheme proposed had been carefully considered, and had received the support of many gentlemen who had a heavy stake in the company.

Mr. BOLTON pointed out, in answer to an observation of a SHAREHOLDER, that the company were to obtain £15,000 in cash, and £8750 in fully paid shares, and these put together would come to 19.32 of the total capital of the new company. This was a very good consideration for the company to receive in exchange for a property they could not work. No doubt the shares of both the old and new company would soon be above par. (Laughter.)

The SOLICITOR then read the agreement.

Mr. HARTRIDGE said he had clients and others representing fully 80,000 shares, and of these 50,000 had signified their acquiescence in the proposed scheme. The question of the debentures had, as the Chairman said, been fully considered, and was found to be impracticable.

Mr. LASKE: With the £16,000 do you expect to develop the mine and put up machinery?

The CHAIRMAN: Yes.

The resolutions were then put and carried unanimously.

Mr. BOLTON proposed a cordial vote of thanks to the Chairman and directors for the able manner in which they had conducted the affairs of the company.

Mr. INGALL seconded the motion, saying the directors had always treated the shareholders in the most straightforward manner.

The motion having been carried by acclamation, the proceedings terminated with a vote of thanks to the Chairman for presiding.

ARGENTELLA MINES, LIMITED.

The company wound up.—A new company and a new property.

An extraordinary general meeting of this company was held on Wednesday, at Winchester House, Colonel W. M. MOFFAT, the Chairman, presiding.

The SECRETARY (Mr. S. C. Whittle) having read the notice convening the meeting,

The CHAIRMAN said: The shareholders had been called together, in accordance with a promise, made at the meeting held on the 29th December last year, that when the board got a property they would lay before their shareholders, it would be at once submitted for their approval. Reconstruction was necessary, the debenture holders having seized the property. The balance sheet was not audited, because the auditor became the receiver for the debenture holders, and, as the company was without an auditor, he (the Chairman) proposed Mr. E. C. Forman for the post. The unpaid fees amounted to £2960, but the directors were willing to forego the £2080 and take only £900, and it was possible they would take that sum in shares in the new company in lieu of cash. The property that had been secured embraced an area of 25 acres, and was held by lease direct from the Crown, for a term of 21 years, at a rental of £1 per acre per annum, renewable without fine or forfeiture. The area held could be increased to 50 acres, if desired. The mine had been tried, and the reason it was not in stronger hands was on account of the depression that had existed in Australia. The price to be paid was £2000 in cash and 25,000 fully-paid shares. A mining engineer resident in the locality had reported favourably upon the property, and the ore, which was refractory, could be treated by the cyanide process. A memorandum from the Queensland Smelting Company (Limited) showed that the returns on various parcels of ore, and concentrates and slimes treated at their works, was 337 tons 16 cwt. 1 qr. 5 lbs., yielding 1039 ounces 5 dwts. of gold; value, 80s. per ounce, the average being over 3 ounces per ton. The mill returns showed that 2786 tons 4 cwt. yielded 2100 ounces 7 dwts. 5 grains of gold. The Magnesium Metal Company, Manchester, in June, 1892, treated 5 tons 19 cwt. of the ore at their works, with a result of a yield of 3 ounces 5 dwts. of gold per ton, with silver 7 ounces per ton. The mine had been reported on by Mr. D. Missingham, mining surveyor, Charters Towers, who estimated that there were over 2000 tons of ore in sight, and also by Mr. John Rutherford, mining manager. This ground could be stopped out and the quartz raised to surface, while the plant of a suitable process was being erected, the new underlie shank sunk, and connections made with the present workings. There was also a large quantity of tailings, which would probably contain payable gold when treated by a more effective method of extraction. The vendor's agent was over here—a mining engineer of great experience and a J.P. This gentleman had consented to look after their interests out there. They (the board) considered £3000 would be required to put the mine in working order. They did not propose to buy costly machinery over here, but to purchase machinery that was lying idle on neighbouring mines. He calculated that to put the mine in thorough working order they would require about £170 per week. Supposing they only raised 125 tons a week (which was a very low estimate) only carrying 2 ounces a ton, they had a revenue of £1000 per week, or a profit of £43,160 a year. Then there were the tailings, which in former times were allowed to run to waste; from them they might also get nearly 2 ounces per ton. He had seen calculations of the cost of the cyanide process on the Rand, which showed only 5s. 10d. per ton including royalties. He had, however, based his calculations on a rate of 10s. per ton; and, moreover, in view of a recent decision in the Courts, he thought they might not have to pay any royalty. Before coming to the resolutions he would ask the solicitor to read the draft agreement.

The SOLICITOR having read the draft agreement for the formation of a new company, to be called the Charters Gold Mines (Limited), the capital of which was to be £270,000 in 270,000 shares, credited with 17s. paid,

The CHAIRMAN put the following resolution:—"That it is desirable to reconstruct the company, and, accordingly, that the company be voluntarily wound up."

The motion was seconded by Mr. JACKSON, and carried unanimously.

The following resolutions were then moved by the CHAIRMAN:

That Mr. William Ernest Blandford be hereby appointed, and is hereby authorized, to consent to the registration of a new company to be called the Charters Towers Gold Mines (Limited), with a Memorandum and Articles of Association to be approved by the liquidator.

That the draft agreement submitted to this meeting, and expressed to be made between this company and its liquidator of the one part, and the said intended company of the other part, be, and the same is hereby approved, and that the liquidator be and he is hereby authorised, pursuant to Section 161 of the Companies Act, 1862, to enter into an agreement with such new company when incorporated in the terms of the said draft, and to carry the same into effect, with such, if any, modifications as he may think expedient.

The resolutions were seconded by Mr. EDWARDS, and unanimously agreed to.

A vote of thanks to the Chairman ended the meeting.

THE KATANGA COMPANY.—The general meeting of the shareholders of the Katanga Company was held at Brussels on Wednesday. The balance sheet and the report of the directors were unanimously adopted, and Mr. Conybeare, M.P., was elected to the board of directors in place of the late Commander Cameron. A convention just concluded the Congo State has transferred to the Katanga Company the full rights over 3,000,000 hectares of land situated on both banks of the Romanee River, in exchange for a strata of territory north of the 5th degree of latitude, and bordering on Lake Tanganyika. The Congo State has at the same time granted the company a further delay of three years for the fulfilment of its obligation.

POORMAN CONSOLIDATED MINES, LIMITED.

The company to be anglicised.—Hopeful report of the property.

A meeting of the shareholders of the Poorman Consolidated Mines (Limited) was held on Monday, at Winchester House, Old Broad-street, E.C., for the purpose of considering proposals to transfer the undertaking to an English company.—Mr. STANLAKE LEE presided.

The SECRETARY (Mr. D. Ovensone) read the notice convening the meeting.

The CHAIRMAN said: You are, of course, aware, from the circular you have received, of the object of this meeting. I was elected a director of this company three or four months ago; but it is not my intention to detain you with many remarks. Mr. Cheston, who has taken a great deal of trouble to send out experts to examine our property, will take the chair shortly, and explain matters to you. On being elected a director I fully realised the responsibility attached to my position, and, before accepting office, I obtained most thorough and trustworthy information with regard to the mine from a gentleman I saw who had examined the property, and is a large shareholder. That gentleman had again visited the mine, and he has given me information to the effect that we have the share value of the mine in sight in dividends. Mr. Cheston will now address you with reference to the report made on the property by Mr. Grothe, who was appointed by the shareholders' committee to investigate the mine, and I think you will find that his report is fairly satisfactory. I beg now, therefore, to suggest that Mr. Cheston should take the chair and conduct the meeting.

Mr. CHESTON then took the chair and said: Gentlemen, those of you who attended the last meeting of the shareholders will remember that we met under somewhat unfortunate circumstances. We knew we had no mill, and we had very little information, and we were not very certain of anything about the mine. I am glad to say that since that time we have received, through the committee of the shareholders, who have been good enough to take so much trouble on your behalf, a very full and exhaustive report from Mr. Grothe, who visited the mine at the request of Mr. Newall and myself, and, at our expense. He went to see exactly what the position of matters was in the eye of an expert in whom we all have the most explicit confidence. The report itself was too long to circulate among you, and we arranged ultimately to have this meeting called at a somewhat inconveniently early date, because we thought that one spoken word is very often better than 20 written words. (Hear, hear.) As Mr. Grothe is in England, and will be here for one or two days, we convened this meeting to-day, so that if you required any information with respect to the condensed report, Mr. Grothe would be here to give it to you. To come back to the position of things at the date of the last meeting, it is right you should know that when the American directors found that it was impossible to find the capital required to rebuild the mill by the issue of shares, they took steps to secure the necessary money by the issue of debentures, and to put the property in trust with a trust company in America for that purpose. The committee, however, who represent us felt—and, I think, felt very rightly—that it was infinitely preferable to put back this company under English management, so that we might hope for a revival of the prosperity that the English company enjoyed before. (Applause.) Fortunately, the American directors, seeing that the matter was pressing, and that the English shareholders were ready to find money to develop the mine, sent Mr. Brotherton over here with full powers to negotiate terms of reconstruction, and in a very few days your committee and he came to an agreement, the terms of which are embodied in the circular before you, and which, I think, is the only solution of the question. The proposal, shortly, is that an English company shall be formed, which shall take over the mine from the American company, the old shareholders receiving share for share for the capital they have subscribed, and that the necessary working capital required, which, I think, must be put down at from £25,000 to £30,000, should be raised by issuing debentures. It occurred to the committee that those who found the money by taking debentures should not only have the best security that could be given them, but also, if the mine proves a success, their debentures should be of greater value. The only way in which that can be done is to give everybody who subscribes for debentures a certain rate of interest and a right within a certain time to exchange the debentures for fully-paid shares in the company for the use of the debenture money. Should the mine improve to such an extent that the shares are worth an appreciable premium, the debenture holders will, therefore, share in the advantage which the shareholders will reap. This is a fair proposal, and one which I think you will approve of. (Hear, hear.) It is not possible to adopt the form of reconstruction usually adopted here of forming a new company to take over the mines, with a certain amount of liability on each share. Of course, this company, being an American company, is not subject to our company laws, but the laws of New Jersey, where it was registered, and it would be impossible to adopt the English form of reconstruction; therefore, the form proposed is the only possible one, and there cannot be two opinions that the resolutions before you, as settled by Mr. Brotherton, are those which the shareholders ought to adopt, subject to one or two things which are necessary. It has been, I believe, considered by all who have examined the question that it is expedient to retain the services of the present secretary, and to keep the offices where the company has been carried on, so as not to lose the information to be found there, and only there. We shall have to see that the board of the company is composed of gentlemen in whom we have every confidence. I think the names which have been selected will be known to you all. One of them is Mr. Newall, who has been acting on the reconstruction committee, and to whom, with Mr. Young, you are indebted for rendering pecuniary assistance to get Mr. Grothe's report at a time when there was no other way of obtaining the money. The others are Mr. J. B. Bryson, Dr. Murray, Mr. J. Varley, Mr. Neil Campbell, and Mr. A. M. Fletcher, all of whom are large shareholders, several having had considerable experience in mining. I believe Mr. Brotherton, who has a great experience of this property, has expressed his willingness to serve on the board if the shareholders wish it, and probably it is advisable that someone representing the American shareholders, who hold a large body of shares, should be on the directorate. Mr. Newall is a man of many engagements, and it was with the greatest difficulty we obtained his consent to serve. Even now it is only a limited consent, because he considers the French shareholders, who have a large holding, may wish to nominate someone, in which case Mr. Newall would retire in their favour. I do not know whether you all know Mr. Grothe. He has the control of another mining property in which I have an interest. However, you will soon see and hear him, and I am confident that the first impression you will form of him will be the same as that formed by those who know him well. He is a man in whom I have implicit reliance. I do not mean that he will promise you large results, but for people like ourselves, who have put money into the mine, and want to know if there is really a chance of getting anything back, you will find he is exactly the man for the purpose, he having great local knowledge and experience, and being thoroughly honest and trustworthy. It would not be possible for him to act as mining captain, but he could select such an official, and be on the property once a week to keep in thorough touch with what is going on, and to advise us as to the progress of operations. I hope the meeting will unanimously pass the resolutions; but there is one thing I want to ask the shareholders to do. The American law, especially in the State of New Jersey, is rather difficult to deal with. The laws of that State provide that in order to dissolve a company before the time for which it has been formed has expired the consent of two-thirds of the stockholders in writing will have to be obtained. Consequently, however unanimous you may be, it will be necessary to pay attention to the circular which you will shortly receive, asking you to appoint someone as your proxy to attend the meeting which must be held in America to pass resolutions similar to those now submitted, and to express your assent, which has to be filed by the

Secretary of State of the State of New Jersey, proving that the provisions of the law had been complied with. I should like to express the gratitude we owe to the gentlemen who have worked on the committee for our benefit, and I will conclude by moving the following resolutions:—(1) "That it is desirable that the property of the company shall be transferred to an English company, to be called the Poorman Gold Mines (Limited), having a capital of £250,000, divided into 1,000,000 shares of 5s. each, and with power to issue debentures to the amount of £30,000, which company shall issue to each holder of shares in this company fully paid up shares forming part of its ordinary capital, of an amount equal to the amount of his holding in this company."—(2) "That the directors of the company be requested to convene a meeting of its shareholders, in accordance with the provisions of the act concerning corporations in the State of New Jersey, for the purposes of voluntarily dissolving this company, and of appointing a trustee or liquidator to carry out its dissolution or liquidation, and for the purpose of transferring its assets and property to the said English company, when incorporated, on condition that such English company shall issue to the trustees or liquidator so appointed for distribution among the shareholders of this company, such a number of shares as shall be equal to the amount of the issued capital of this company."—(3) "That upon the issue to such trustees or their nominees of the shares referred to in the foregoing resolutions the assets and property of the company shall be conveyed to the English company, on their paying or satisfying the outstanding liabilities of the company."—(4) "That a copy of these resolutions be forwarded to the directors of the company in America, together with a list of the shareholders present thereat, with their respective holdings, and that the directors shall act upon the copy of these resolutions, as being a proxy authorising them to vote for such resolutions on behalf of all the shareholders present at this meeting."—(5) "That upon a receipt of a cablegram announcing the consent of the directors to the course suggested in these resolutions, the English company be immediately incorporated, and an agreement entered into, in order to carry out the terms of these resolutions."

Mr. BRYSON seconded the resolutions.

A SHAREHOLDER asked whether the American directors were willing that the undertaking should be turned into an English company.

The CHAIRMAN, in reply, said that Mr. Brotherton was present, and he had full powers to give the assent of the American directors to that course. He further stated that directly the resolutions were passed in America, the English company would be formed and the debentures issued; but the shareholders would be asked before that time to intimate what proportion they would take. There was little doubt that the whole of the money asked for would be obtained without difficulty. The property was much too good to be sacrificed for a small sum.

The resolutions were then put and carried unanimously.

Mr. GROTHE, in accordance with a request that he should address the meeting, said the impression he formed of the property was a very favourable one, and he was not the only one who thought well of the property. They all knew the uncertainty of working mines; but, apart from that, he thought they had a fair indication of an exceedingly valuable property. Having undertaken to investigate the mine for the committee, he approached it in a sceptical manner; but the various samples taken from all parts of the mine gave a return which, if it could be maintained as an average of the whole mine, would certainly constitute a fortune for several people. In no single instance, however, had he seen a mine turn out in actual results what the samples showed. He felt confident they had a property which for a considerable time could produce ore of about £20 to the ton, and that the circumstances under which it could be worked were of such a kind that a very handsome profit could be realised. He could say without hesitation that the shareholders had very good grounds for thinking that they would get good returns on their original investment. (Applause.)

Mr. BROTHERTON, in reply to a question as to the likelihood of the American directors carrying out the resolutions passed that day, said he wished to mention that the American directors had given him unlimited powers, and that every one of the resolutions would be adopted by them. All they required was the consent of two-thirds of the share capital. A short time ago, they would remember, an expert was sent to the mines by the French shareholders. He was glad to be able to tell them that the company was now in possession of that gentleman's report, and that it was, on the whole, very favourable. (Applause.)

A vote of thanks to the Chairman terminated the proceedings.

THE BALKIS EERSTELING, LIMITED.

The prospects for the property.—A change of management.

The third ordinary general meeting of the Balkis Eersteling (Limited) was held on Wednesday, at Winchester House, the chair being occupied by Mr. PEARCE EDGCUMBE.

The SECRETARY (Mr. E. S. G. Malins) read the notice convening the meeting.

The CHAIRMAN, in moving the adoption of the report and accounts, reminded the assemblage that a special meeting of the shareholders of the company had been held at the beginning of the year, at which the directors recommended that the mine should be shut down, the reason being that it was difficult to work a mine so far away from a railway; that the works of development were proceeding very slowly; and that, so far as could be gathered, it would very likely be beyond the company's means to reach payable stuff with the resources at their command. Accordingly, a majority of the shareholders, after a full discussion, expressed their approval of the board's policy, and after several letters preparing the manager for that step, directions were sent to him for closing down the mine. The answer to these instructions was a telegraphic communication to the effect that the rock in the 160 feet level was worth 1 ounce to the ton; that the prospects were encouraging, and that it would be the greatest mistake to shut down at the moment. The board took this communication into anxious consideration, knowing that if once the property were left unworked it would probably be a matter of considerable time and expense to recommence operations there. Speaking for himself alone he should, in any case, have been disposed still to order the mine to be shut down, but when they came to consider what the opinion of the shareholders would be on the matter, and remember that their manager had expressed the opinion that it was only a question of 30 feet further drivage to prove the mine satisfactorily, the conclusion was hardly avoidable that the proper course would be to sanction the further sinking as requested by the manager. Having arrived at this conclusion, they telegraphed to the manager that he was to continue sinking. After the manager had received the telegram, he followed up his own cable with a letter, repeating that it would be the greatest mistake to think of shutting down the mine at the present time. "Some of the stone," he said, "taken out has been very rich, and the samples I had taken just before the receipt of your wire showed certainly over an ounce of gold per ton of stone, and the reef is looking strong and well." Further on he said that "to stop the work now would be to sacrifice all that has been expended when two or three more months' work must prove definitely whether we have a reef of value and permanency or not, and will also, as a matter of fact, prove the prospects of the whole district, as, if there is one true fissure vein, there are sure to be more." These assurances fully encouraged the directors to believe they had acted rightly in deciding to proceed with the works. It was, therefore, a great disappointment to the board when, a few days ago, they received a letter in which the manager said he had only just accomplished the work which the board had believed he would have completed in two or three months. Subsequently they heard that there had been great delays occasioned by the excessive rains, and that the whole of the

attention of the staff had, for the moment, to be directed to making good the main shaft and defeating the water. Some paragraphs had appeared in the *Standard and Diggers' News*, in one of which the mine was reported to have struck a very rich reef at the 200 feet level. No such information had been received from the manager, and when he was communicated with, he expressed the belief that the find was evolved from the writer's imagination. About the middle of August a paragraph had appeared in the *Statist* saying that a gentleman had been all over the mine and that he had picked out stones at haphazard in perfectly dark places, all of which had assayed 1 ounce to the ton. The company's representative at Johannesburg had been instructed to make enquiries into this statement, and found that Mr. Wilmer, the editor of the *Zoutpansberg Review*, had been down the mine and had taken away stones, but unfortunately he had since met with an accidental death, so that the results could not become known. In considering the value of the ore it should be borne in mind that the mine was an expensive one to work, in consequence of the necessity for expensive pumping and lifting machinery. Consequently 1 ounce rock was necessary to make the mines pay, and 7 or 8 dwts. would not be sufficient. Accordingly, on being told by the manager that the rock was generally assaying 1 ounce they were content to proceed, but on reading subsequent letters they came to the conclusion that the manager had been misled by a temporary improvement in the condition of things. His own feeling was that the Government themselves ought to bear the expense of testing the district, seeing that their interest lay in its being opened up; and seeing that the other companies were waiting to know how they themselves got on, he hardly thought it advisable for them to pull the chestnuts out of the fire for other people. The directors, moreover, thought that the only course they could take was to appoint another manager, and get an independent report from himself, notwithstanding their opinion that Mr. Duncan, their last manager, was a very excellent manager in his way. Consequently, they induced Mr. Middleton, an engineer of great experience, to go out to the property and take over the management, and his report was expected in about three weeks. In conclusion, the Chairman expressed regret that there was not a more pleasing record to submit to the shareholders, but assured the meeting that everything possible had been done in the interests of the company.

Mr. CUMMINS seconded the resolution, which was carried unanimously.

A brief discussion ensued, and the retiring director, Mr. Cummins, having been re-elected, and the auditors reappointed, the proceedings terminated with a vote of thanks to the Chairman.

DRAKEWALLS MINING COMPANY, LIMITED.

Matters improving at the mine.—Mr. Moses Bawden speaks.

A half-yearly general meeting of the shareholders in the Drakewalls Mining Company (Limited) was held on Thursday, at Winchester House, the chair being occupied by Mr. G. S. ANDERSON.

The SECRETARY (Mr. W. J. Lavington) read the notice convening the meeting.

The CHAIRMAN, in his opening remarks, said that at the last meeting they had had to lament the death of their Chairman, Mr. Paine, and a few weeks subsequently death deprived the board of another member in the person of Mr. Collins, whose counsel had been of the greatest use to them. His services to the company had extended over many years, and as he was a shrewd man of business, and had many friends at Glasgow and elsewhere, the board missed him very materially. Previously to this time the board had given their personal guarantee for an overdraft of £2500, and it had been intended that the call to be made next month should not altogether be applied to a reduction of this liability, but that a certain portion of it should be used as working capital. The death of Mr. Collins, however, necessitated a change of plan, his trustees being bound by law to realise all his assets as speedily as possible. Accordingly, a meeting of the largest shareholders was summoned, and these appointed a committee of five gentlemen to represent them. Several meetings were held by the latter body in conference with the board, and one of the first measures taken was the appointment of Mr. Moses Bawden first as local manager, and then as member of the board, where his wide experience would undoubtedly be of the very greatest service. (Hear, hear.) The results of the working for the past three months had turned out to be fairly satisfactory. In September the costs were £323 8s. 8d., and the returns £542 0s. 10d.; in October the costs were £393 17s. 3d., and the returns were £613 15s. 2d.; while in November the amounts were £677 11s. 2d. and £550 respectively. Thus the total of costs for the three months had reached £1794 17s. 1d., and the total of returns £1678 16s., leaving a deficit of only £116 1s. 1d. The entirely satisfactory nature of these figures would appear when it was remembered that the bulk of the expense had gone in deadwork—in driving the crosscuts and cutting the lodes. As to the future calls, the committee had unanimously decided in favour of a view, originally expressed by the secretary, that the future calls should be threepenny calls, made at intervals of three months, instead of sixpenny calls at intervals of six months. In order to give effect to this decision he would conclude by moving:

That in consideration of the position in which the finances of the company have been placed by the death of Mr. Collins, this meeting cordially approves of the suggestion made by the board that instead of calls being made of 6d. at intervals of six months that 3d. per share shall be called at intervals of three months, and authorises the board to issue future calls and notices accordingly.

Mr. MOSES BAWDEN then read his report of the works in progress at the mine, in which it was stated that since July 19th the engine shaft had been sunk 9 feet to reach the 190, where a deep plat, 12 feet long by 9 feet wide, was hand cut. Three stopes had been worked at the 160 fathom level east of the engine shaft by 22 men, and two stopes west of shaft by 10 men, while four men had been stoking at the 175 fathom level west of shaft. A new tramroad had been completed from the upper floors to the stamping mill, thereby doing away with the whole of the cartage from these floors, and effecting a considerable saving to the company. A small blast fire had been erected in order to deal with the stamp lifters on the mine, and the stamp heads had had to be replaced by new ones. A good deal of attention had been directed to preventing the water from finding its way below the deep adit, and they had succeeded in discharging the water into the River Tamar. Had this not been done the recent floods would have prevented them from using the floors during the winter. Since July 19th they had sold over 21 tons of black tin and 77 tons 16 cwt. of arsenic foot, and had 40 tons more ready for delivery, thereby showing the stopes had been fairly productive of tin. In conclusion, the writer expressed his opinion that the most profitable part of the mine would be found going east of the engine shaft, which had been confirmed by recent experience. Mr. Bawden, in a short speech, supplemented to some extent his report, in which he explained he had resumed his connection with the management of the company at the request of the directors. At the last meeting it had been said that the arsenical mundic stopes were nearly exhausted. His own opinion was very different, and in a private letter written 18 months ago he expressed the view that the stopes were by no means exhausted, but that there was still plenty of scope for profitable working. At that time he recommended that the works should be directed towards cutting the junction of the lodes, which had now been done, and the junction located precisely where it had been expected. The amount of tin and arsenic mundic already raised would probably turn out to be only a very small portion of which was therein contained. In conclusion, Mr. Bawden suggested that some few of the shareholders should pay up their calls earlier at a fair percentage of interest, which would place the company in a sounder financial position.

Mr. H. WILSON seconded the motion, proposed by the CHAIRMAN,

expressing his great pleasure that Mr. Moses Bawden had again become associated with the management.

Mr. SLOPER genially criticised the management on one or two points, after which the resolution was put and carried unanimously.

Mr. COLLINS, junr., described a visit paid recently to the mines, and said that the position of affairs there was much more satisfactory than it had been.

Mr. BAWDEN, in answer to Mr. SLOPER, said that the lode would probably be cut in two or three weeks.

A vote of thanks to the Chairman then terminated the proceedings.

SNAEFELL MINING COMPANY, LIMITED.

Annual meeting.—Lessened production of lead.

The annual general meeting of this company was held on Wednesday, at the Villiers Hotel, Douglas, under the presidency of Mr. T. FISHER, H.K., J.P.

The directors' report and accounts were taken as read.

The SECRETARY read the notice convening the meeting.

In moving the adoption of the report and account, the CHAIRMAN remarked that as compared with last year's low prices, there had been a further drop of 28s. 9d. per ton on the lead, and 9s. 4d. on the blonde. This reduction on the quantity sold amounted to over £1150, and an outlay of more than £400 on the capital account. He trusted that the lowest prices for lead were passed. The directors were hopeful that after raising the small amount of capital required and completing the special work necessary, they would be able to produce ore as cheaply as any mine in the kingdom, and not only pay costs, but provide a small dividend.

Mr. KILLEY seconded the motion for the adoption of the report and accounts.

In accordance with the request of the shareholders,

The MANAGER said: I will show you two stones which we got in our bottom level recently. Both were taken out of the 171, not far behind our present end. We have driven further since.

Mr. J. BROWN: Does this sample hold? Is what is at the end so good?

The MANAGER: Not quite; but it changes. When we get further on we may expect ore at any time. The new ground will give us 3000 fathoms of working. Two of the sums have gone down in good ore, and the third in magnificent ore. If we can work up from the bottom level I think we will be able to pay a dividend, and to work the mine in a miner-like manner, and, in addition, save a great deal in the cost of steam power. We have good ground past the 41 for stoping. There are hundreds of tons of ore there now ready to take away. The 130 has been in good ore ground for the past 30 fathoms, and, if the price were better, we could take away hundreds of tons of ore; but, in the present state of the market, it is hardly good enough. In the 141 we have a magnificent lode, and about there there is about 600 fathoms of good working ground which might yield a profit.

Mr. GOLDSMITH: Perhaps the manager would explain the cost of driving up from the 171 to the ore ground.

The MANAGER: We are paying 55s. a fathom now.

The report and accounts were passed unanimously.

After the transaction of the usual business the meeting closed with votes of thanks to the Chairman and directors, the captain, and secretary.

CHICAGO AND NORTH-WEST GRANARIES.

Largest profits recorded for any one year.

The fifth ordinary general meeting of this company was held on Tuesday, at the Cannon-street Hotel, E.C., under the presidency of Mr. HENRY SETON-KARR, M.P. (the Chairman of the company).

The SECRETARY (Mr. John S. Purry (having read the formal notice of meeting,

The CHAIRMAN said: Gentlemen, I rise for the purpose of moving the adoption of the report and accounts. The net profits for the past year are the largest since the company started, the sum as declared by the American company being \$181,154. After providing £12,200 for the debenture interest and sinking fund, writing off £325 from preliminary expenses, paying all administration charges, and placing £7000 out of profits towards the working capital, there remains an available balance of £16,120. Of that sum we recommend the payment of dividends of 8 per cent. per annum on the preference shares and 5 per cent. on the ordinary shares, carrying forward the small sum of £520. I think you will agree with me that this is a satisfactory showing. I feel I ought almost to apologise for the largeness of our profits, because you will see that our total turnover of grain handled during the past year has been the smallest during the five years that the company has been in operation. That, however, is not the case with regard to wheat. The total grain handled was the smallest last year because we had a falling off in the barley, rye, and oat crops. The reason of our larger profit is a very simple one. Last year, as you all know, the financial condition of America was very much depressed. The money market was very tight, and we borrowed very large sums of money on that side, in order to carry on our business. Money was hard to obtain, and only men and firms of high standing could get it. We were fortunate in having at Minneapolis men of first-rate standing and the highest credit, and the result was that we were able to borrow on moderate terms, so that we could make large carrying charges and profits for the company. Our profits were made in some ways under favourable circumstances, and are due very largely to the standing and credit of our managers in Minneapolis. That explains the apparent inconsistency of our report. But it is generally true that the profits of this company must vary in proportion to the amount of wheat and other grains that we handle during the year. I will now allude for a moment to the paragraph of the report which deals with our loss by fire. You will remember that we have had a law case in regard to this going on since 1891, when that loss by fire occurred. This past year that action was compromised on the terms stated in the report. Personally, I am very glad indeed that the matter has been settled. The sums obtained from some of the insurance companies have been sufficient to cover the payment of the \$5500 on which we settled, and also the cost of the action, leaving our net loss, by wheat destroyed, about \$35,000. The only detail in the accounts with which I need deal is the transfer of £7000 out of profits to the working capital. I dare say all of us who are ordinary shareholders will feel that we should like to have that £7000 divided amongst us. I think, however, out of fat years we ought to provide something for lean years. Apart from that reason for laying up something for your capital we have always understood that the working capital should be made up to £100,000. We have never before had an opportunity of placing anything out of profits to working capital. It has this advantage, too—that all we place to working capital saves us interest, as far as it goes. We borrow considerable sums with which to carry on our business, and have to pay interest. We have also during the history of the company spent out of working capital about £20,000 for the purchase of new properties. Our capital is not as large as we could wish it to be, and we felt bound in this good year to put a substantial sum

towards the working capital. Another point I will call attention to is that the £7000 is there in hard cash. The £7000 may be looked upon as a reserve fund, in case of necessity, for the equalisation of dividends. For these reasons we have thought it right to put that sum to working capital, and I trust that course will meet with your approval. I will now refer to my visit to America and the arrangement I made with our managers there. I spent a week in Minneapolis in constant conference with our managers, and went thoroughly into all the details of the business. I found everything in a perfectly satisfactory condition. I also met a good many of the leading men of Minneapolis, and a great deal of independent testimony was given to me of the high standing of Mr. Van Dusen and his colleagues—his son and Mr. Harrington. It was my chief business in going out there to make a new agreement with them, and the position was somewhat delicate. The result was a new management agreement was arranged. Perhaps you may think the terms are rather stiff. Mr. Van Dusen asked double the salary he had been receiving, and extra for his son and Mr. Harrington, making the total increase \$15,000. He gave us an alternative proposition—viz., that he should receive his old salary of \$10,000 and 10 per cent. on the surplus profits. I considered the matter, and came to the conclusion that the first proposition was the best for the company. During the past four years we have made an average of \$140,000 net profit a year, and if Mr. Van Dusen received 10 per cent. on that as well as his old salary it would amount to considerably more than \$20,000. We, therefore, accepted Mr. Van Dusen's terms, and I trust you will approve and endorse our action. The engagement is for another five years, with the object of extending it for five years longer. I have now only to refer to the debenture sinking fund. We have reduced, by yearly drawings, our debenture debt from £120,000 to £94,600. I am not sanguine that we should be able to carry out a scheme for the redemption of the debentures, though one of my colleagues—Mr. Bevan—is. Of course, it involves the assent of the debenture holders, and I am afraid there may be some difficulty in that matter. The scheme is not actually complete yet; but the idea would be to make a fresh issue of debentures and pay off the old ones, partly in cash and partly in new debentures. I now move the adoption of the report and accounts. (Applause.)

Mr. M. S. VANDERBYL seconded the motion.

The CHAIRMAN, replying to questions, said the company had secured the whole of the services of Mr. Van Dusen, and it was expressly understood that he should use his knowledge for leasing other houses wherever he saw an opportunity—of course, in the interest of the company. The American accounts could be seen at the offices; but it was not considered advisable to publish the details for their competitors to benefit by. It was entirely incorrect that the company speculated in corn. The whole secret of the company's success lay, he thought, in the fact that they never, under any circumstances, speculated in corn. When they bought corn they sold it for future deliveries at once.

The motion was carried unanimously, and the dividends were declared as recommended.

Mr. W. A. BEVAN proposed the re-election of the Chairman to his seat on the board, which was seconded by Mr. VANDERBYL, and carried.

The retiring auditors (Messrs. Deloitte, Dever, Griffiths, and Co.) were re-elected.

A vote of thanks to the Chairman and directors, together with an expression of satisfaction with the progress of the business under its present managers, moved by Mr. MASSON, was carried unanimously.

LATEST FROM THE MINES.

CABLEGRAMS AND TELEGRAMS.

AFRICAN CONSOLIDATED LAND.—The secretary reports that the board have received advices from South Africa to the following effect:—"The sinking of the shaft is proceeding slowly, as they are sinking through a hard stone resembling grey granite with a vein of greyish metal running through it. The driving is also progressing. I have again tackled the officials on the railway, and sent an express on horseback to get the coal ready, so as to load up directly the trucks come along-side."

APPANTOO.—Cablegrams received from the mines state:—"During last month mill worked 28 days; crushed 800 tons; yielding 254 ounces gold, a large quantity of debris mixed with ore. We are now crushing better ore. Watching during the night. Cawston shaft. Have struck very rich ore; will be crushing from here in six weeks."

BAKER'S CREEK.—Result of crushing for fortnight ending 17th November. 660 ounces retorted gold.

BAYLEY'S REWARD.—The following cablegram has been received from Melbourne by the London office:—"Week's run, 700 ounces, 131 tons."

BONNIE DUNDEE.—The following cablegram has been received from the managing director in Charters Towers:—"The new (No. 3) shaft has attained a depth of 1000 feet. The indications are favourable."

BROKEN HILL PROPRIETARY.—For the week ending the 15th inst. 10,382 tons of ore were treated, yielding 910 tons of lead, containing 242,896 ounces of silver, also 1111 tons treated by amalgamating and leaching plants, producing 16,142 ounces of silver. The price of the shares in Melbourne is £1 19s. 6d. buyers.

CALLAO BIS.—The directors have received cable advices from Mr. H. Lancaster Hobbs, the company's mining engineer, now in Coolgardie, who proceeded to Western Australia in accordance with the announcement made at the recent annual meeting of the company, that he has secured for the company an option to purchase a property in that district upon terms which the board consider advantageous, and a meeting of the shareholders will be convened in due course to take into consideration the proposed purchase.

CONSOLIDATED GOLD MINES OF WESTERN AUSTRALIA.—The directors of this company have received a cablegram from Roebourne, North-West Australia, dated November 19, and stating that the late manager has just arrived in Roebourne from the Coongan Mine with 400 ounces of gold, valued at £1500.

COSTA RICA.—A cablegram from the mine reports shipment on 12th inst. of bullion valued at £1559.

DAY DAWN P.C.—The following cablegram has been received from the manager at Charter Towers, giving the result of the crushing for the fortnight ended November 17:—"No. 1 shaft, 67 tons, 83 ounces; No. 3 shaft, 165 tons, 460 ounces. Have shipped per s.s. *Mombassa* 1023 ounces."

ELKHORN.—Bullion produced in the mill for week ended November 17, 9500 ounces.

FRANK JOHNSON AND CO.—Reuter's Agency has received communication of the following telegram from the British

South Africa Company:—"Cape Town, November 19: Old Chum (Hartley Hill, belonging to Frank Johnson and Co.) have had a trial crushing, yielding 2 ounces 5 dwts. per ton: their representative in Mashonaland reports that a crushing of 121 tons has been completed at the Auriga (Hartley Hill), giving a yield of 12½ dwts. per ton, the tailings giving 10 dwts."

GELDENHUIS ESTATE AND GOLD.—Copy of cablegram received from the head office at Johannesburg:—"Last month's profit was £7300."

HARRIETVILLE.—Return for the past four weeks, 500 tons, 212 ounces.

ISLE OF MAN.—The secretary sold on the 20th inst. 100 tons of this company's ore (chats) at £6 15s. per ton.

JAY HAWK AND LONE PINE CONSOLIDATED.—The directors have received the following telegram from the manager, viz.:—"Crushed for the week 146 tons, yielding 3900 ounces."

JOHANNESBURG COAL.—The net earnings of the year amounted to £214 10s. 10d.

KANGARILLA SILVER.—New winze: Assay at 245 feet down, 40 ounces silver.

KINSELLA.—The directors are in receipt of cablegrams from Mr. F. W. Grey intimating that he took possession of the mines on behalf of the company, on the 16th October, and that he has commenced mining operations. The Hidden Treasure Lease, adjoining the Kinsella properties to the north, consisting of 12 acres, has been acquired by the company for £1000. The Kinsella lode, Mr. Grey reports, can be traced into and through a portion of this ground. There is also a good mill site on this lease. An application to the Government for a lease of 24 acres immediately adjoining the Kinsella Mine to the east, has been made in order to secure as large an area as possible on the dip of the lode.

MOUNT ZEEHAN (Tasmania).—The following telegram has been received, dated Hobart, 20th inst.:—"Milled 200 tons of ore during 9 days for 25 tons concentrates, containing about 18 tons 15 cwt. lead and 2125 ounces of silver. Shipped 50 tons per s.s. *Karlsruhe*."

NEW QUEEN.—Result of crushing: No. 4 formation—127 tons, yielding 55 ounces gold.

ORION.—Cablegram:—"A bonus of 15 per cent. has been declared, payable to all shareholders registered on November 17. The agreement scheme of reconstruction between this company and the Mulders Farm Gold Mining Company (Limited) has been signed."

OTTO'S KOPJE DIAMOND.—The manager cables on 22nd inst. from Kimberley that owing to the great heat now prevailing the machinery cannot be completed for production until the middle of next month. The general meeting, which must be held before the end of the year, will be postponed to as late a date as possible, when the directors hope to communicate to the shareholders the first results obtained by the new machinery.

OURO PRETO.—Return for October: 3832 tons produced 38,085 grammes=1224 ounces.

PHOENIX GOLDEN PILE.—Mr. Samuel James, of 3, Copthall Chambers, E.C., has received the following cablegram, dated Gympie, 16th inst.:—"Phoenix Golden Pile crushed 264 tons, yielding 116 ounces. Dividend declared 6d. per share."

RIPANJI QUICKSILVER.—The manager reports: For 60 hours run to November 17 the yield of finished ore was 26 tons.

ROYAL SILVER MINES OF POTOSI.—The production for October amounted to 19,240 ounces fine.

7 SOUTH LADY MARY.—Mr. Samuel James, of 3, Copthall Chambers, E.C., has received the following cablegram, dated Gympie, 17th inst.:—"7 South Lady Mary—Crushed 160 tons, yielding 448 ounces. Dividend declared, 2d. per share."

SPRINGDALE.—The following cable has been received from the consulting engineer, M. A. L. Pearse, from the mines:—"Mountain Lion has improved since my previous visit; developments on the second lode prove equally good."

TWIN LAKES PLACERS.—The managing director reports that washing was suspended on the 4th inst., and that the mine was closed down for the winter on the 20th inst. He estimates the total bullion output for the season at \$80,411, which would give a sum of \$3914 as having been cleaned up during the current month.

UNITED MEXICAN.—Telegram:—"San Cayetano—Gross returns for week ending November 10, \$870; expenses for week ending November 10, \$1120; loss, \$350. El Cubo—Gross returns for week ending November 10, \$7718; expenses for week ending November 10, \$6400; profit, \$1318."

VAN RYN.—Net profit for the month, £1050; cyanide works, £880.

VICTORIA (Charters Towers).—Fortnightly crushing: 244 tons crushed yielded 328 ounces of gold.

VICTORIA GOLD MINING ASSOCIATION.—The fortnightly crushing has been cabled as follows:—"244 tons crushed yielded 328 ounces gold."

WAIIHI GOLD.—Bullion return for 28 days ending 17th inst. £8860 from 2150 tons.

WEST AUSTRALIAN GOLD FIELDS.—The directors have received a cablegram announcing that their agents have inspected a mining claim which has been under option to the company. The report of the company's mining manager is to the effect that there are now upwards of 3500 tons of ore in sight, estimated to produce 8500 ounces of gold, equal to £3 15s. per ounce to £31,875, or considerably more than sufficient to pay the total consideration for which the company has the option to acquire the claim.

ZEEHAN MONTANA.—The following telegram has been received, dated Hobart, 20th inst.:—"Have shipped per s.s. *Karlsruhe* 185 tons of ore, containing about 30 tons of lead and 18,500 ounces of silver."

FORTHCOMING MEETINGS.

* We shall be obliged if Secretaries or other Officials of Mining, Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings—whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned—in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Balance sheets, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent.

Name of Company.	Place.	Nature of Meeting.	Date.	Time.
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THE PRACTICAL OPERATION OF THE CYANIDE PROCESS ON THE RAND.*

By M. BISSELER.

Introduction.

THE metallurgical knowledge of preparing and winning the gold from its ores resolves itself, broadly speaking, into two methods. One is by mechanical, and the other by chemical means. There are only very few chemical means by which gold can be won from its ores, leaving aside the smelting process by which the gold is collected in the smelting furnace by means of and in combination with other metals.

Its solvents are *aqua regia*, chlorine and potassium cyanide. The application of such a corrosive agent as *aqua regia* for the treatment of ores on a large scale is out of the question, and of the chemical means at our command there remain only the last two. It is with the practical working of the latter solvent, known as the cyanide process, that this paper deals, and more particularly with it as applied to the treatment of the ores of the Witwatersrand gold fields.

I shall not deal in this paper with the chemistry of the process, but only confine myself to the observation that the process consists in submitting the powdered ore or tailings to the action of dilute solutions, containing potassium cyanide, by which means gold and silver are obtained in solution, from which solution the precious metals are precipitated by zinc, preferably filiform or threadlike. It is on these broad lines that Messrs. MacArthur and Forrest are working their patents.

Within the last few months, Messrs. Siemens and Halske have successfully introduced on these fields their patented process, which consists in precipitating the gold by electricity on sheets of lead, and owing to certain economical advantages their process will prove a formidable rival to the former. I shall now proceed to give you an account of the working details of these processes.

Planning the Works.

In the erection of a cyanide plant, before planning the same, some essential points have to be considered. Are the works to be erected to treat an old accumulated stock of tailings, or have they to be laid out to treat the tailings as they come from the battery? In many cases both these points have to be combined.

In working old tailings by the cyanide process, there is no difficulty in percolation, as they come to the works in the proper condition. They were cleaned of the slimes by the natural system of concentration which takes place in the collecting reservoirs.

To lay out plans for an accumulated stock of tailings offers no great difficulty, provided there is near by a sloping ground permitting of the discharging from the leaching tank, and their dumping by gravitation. If the country is flat the reworked tailings will have to be hauled up an incline again and then dumped. On a flat site it will be necessary to place the leaching vats on masonry sufficiently high to give room for discharge, and gradient for the flow of the leaching solutions to the precipitation boxes.

When works are erected to treat tailings which are discharged from the battery, important appliances have to be resorted to, to prepare them for the cyanide treatment, and before they are collected in the leaching vats, owing to the physical condition of the powdered ore.

The discharge launder which carries the tailings from the battery to the cyanide works should have a grade of at least 3 feet 6 inches in the 100 feet to insure a good flow. In a flat country where no grade exists the tailings should be elevated by means of bucket wheels to the proper height. On these fields, tailing pumps have not given satisfaction. It may be that they were not properly constructed, as I am told that in Australia they are in various places in successful operation. There are on several mines here large tailing wheels in use, and I should consider them the best way of elevating tailings, as they require very little attention and repairs when properly constructed and set.

Supposing that we desire to erect a cyanide plant directly behind a battery, the following grade would be required for doing the whole work by gravitation. Supposing the plant to be located 100 feet from the battery:—
The grade for the discharge launders will require 3 ft. 6 in.
Masonry for settling tanks 6 ft. 6 in.
Settling tanks say 10 ft. 0 in.
Masonry for leaching tanks 6 ft. 6 in.
Settling tanks say 10 ft. 0 in.
Precipitating boxes and grade for outflow pipes.. 6 ft. 0 in.

Total grade 42 ft. 6 in.
To this could be added from 6 to 10 feet of grade for the storage tanks holding the cyanide solutions, wash and alkaline waters, but these are differently placed, and a lack of further grade would present no difficulties, as will be explained later on.

Plate I.—Section of Princess Works.

Slimes.

The conglomerates on these fields after stamping contain a very large per centage of slimes. Under slimes are understood the very fine particles of talcose and clayey material mixed with the very fine grains of quartz, iron oxides, and sulphides. If all of this fine material were allowed to collect with the coarser grains, the percolation of fluids through the mass would become impossible, and therefore mechanical means have to be adopted, aiming at a separation of the slimes from the coarser material.

Two methods have been introduced on these fields, aiming at the elimination of the slimes; the one by direct filling is the system introduced by Mr. Hennen Jennings, the well-known mining engineer; and the other the immediate filling adopted by Mr. Charles Butters and Captain Mein, the manager of the Robinson Mine.

The elimination of the slimes has an economic bearing on the gold mining industry of these fields, when it is considered that at least 30 per cent. of the Witwatersrand ores after crushing pass away into slime pits, therefore at the present production of over 250,000 tons of ore per month, 75,000 tons go into the slime pits. At the present rate of progress it is almost certain that the tonnage will increase to nearly double this amount, and that within three years the Witwatersrand will be producing 300,000 ounces of gold, or one million sterling monthly. If we take the average value of the slimes all around at only 5 dwts. per ton, this represents nearly 20,000 ounces of gold which goes into the pit monthly.

Up to the present no cheap method has been devised to deal with the slimes, so as to win the gold from them at a profit. The question of treating the slimes successfully is simply a mechanical one, and my impression is that the eventual solution of the problem will be a system of agitation in vats fitted with mechanical stirrers, and after agitation and settling the solution

will be decanted and a weaker solution added again, again stirred and decanted, till the last wash waters will only show traces of gold. This method will become applicable owing to the introduction of the Siemens and Halske process, which effects the precipitation of the gold from the extreme weak solutions which will have to be used.

The Effect of Stamping on the Ore.

When ores are stamped in a battery, the resulting product is very uneven, and this is one of the recognised disadvantages of the batteries in use in all gold countries.

The majority of the mines on these fields crush fine, using mostly screens of 900 mesh per square inch, and about 50 per cent. of the ore is converted into slimes. These slimes do not settle in 24 hours, and if the overflow is taken and allowed to settle, these second settlings will assay 6 dwts. per ton, therefore are richer than the first settlings, while the water which leaves the second slime pit still holds in suspension 2 per cent. of the total gold contained in the ore as it comes from the mine.

The Plant.

The main features of a cyanide plant are the filter vats, the settling vats, the solution storage tanks, and the precipitation boxes.

The filter vats are made of timber which will last for years, or they are brick vats lined with cement. At the Langlaagte Estate and Gold Mining Company circular excavations were made in rocky ground, lined with brick and cemented. These tanks are 40 feet in diameter, and 10 feet deep, holding 400 tons of tailings each.

I have not been able to obtain the cost of a plant constructed in masonry, but I should consider the same more expensive than the timber plant. Where wooden tanks are in use they are placed in such a position that free access can be had to the bottoms in case of leakage, which is an advantage.

The number of filtering vats required for a plant depends on the capacity of the battery and the time it takes to treat charge of ore. If we want to treat 100 tons of tailings daily, and it takes, say, three days to fill, leach and discharge a vat, it will require four leaching vats of 100 tons capacity each, dimension 22 feet diameter and 5 feet high, but for safety one extra tank is added. The tendency on these fields is to construct a few large vats at a plant, instead of a large number of small ones. Before the tailings go to the leaching tanks they have to be freed of their slimes, and I shall now describe the two methods which have been adopted on these fields to carry this out.

Intermediate Filling.

(*By means of Messrs. Butters' and Mens' Distributor*).

The distributor is fixed on an iron column in the centre of the vat; the bends at the end of the pipe cause the apparatus to revolve by the reaction of the pulp, as it leaves the pipe. Each pipe has a different length, in order to distribute over a number of concentric circles. This also has its faults, as it was found that the slimes collected in narrow rings between the outlets of each pipe, giving rings of clean sand alternately with rings of slime. The difficulty was overcome by attaching flattened nozzles to the ends of the pipes, causing the pulp to spread over a wider area, and also by increasing the number of pipes.

The arrangement is in a hemispherical bowl, from which radiate 8, 12, to 16 pieces of pipes of various lengths, and is set in motion by the centrifugal action of the discharging water, something similar to a garden sprinkler, only revolving slow. The bowl is covered with a coarse screen, so as to prevent chips or leaves to enter and choke the pipes. The diameter of the discharge pipes is 1½ to 2½ inches.

It is necessary to fill the vat with clean water before admitting the pulp, and it is also essential that the overflow be continuous until the vat is full of sand, for, if any stoppage takes place, slime settlement in excess occurs, and a complete layer of slime is formed across the vat, which prevents the overlying sands from draining dry. Therefore, when the battery is stopped, an equal quantity of water should be supplied to the vat. When the pulp is admitted into the tank previously filled with water, the light slime remains in suspension, and overflows into the annular ring which surrounds the tank at the top, and from the discharge opening is carried by a launder to the slime pits.

When the vat is filled with tailings the outlet pipe below the filter is opened and the water allowed to drain off, the draining taking about 15 to 24 hours. When holes are dug down to the discharge doors, water again commences to flow from the outlet, consequently it is advantageous to dig these holes about six hours before discharging.

One very important matter is the proper size of vat to be used for a given tonnage crushed in the battery. When the vats are too small they carry away too much fine sand with the slime, and if they are too large, they catch too much slime, which settles in excess. The great difficulty to overcome yet with these intermediate vats is to get the last foot or two near the bottom properly drained, and if discharged and transferred to the leaching tanks in this wet condition, the excess of moisture dilutes the cyanide solution.

Advantages of Intermediate Filling, as introduced by Mr. C. Butters.

1. It is claimed that by means of Mr. Butters' distributor from 75 to 80 per cent. of sands, both coarse and fine, with some slimes are collected in the intermediate tanks, the bulk of the slimes escaping with the effluent water, being practically free from sands.

2. The water is drained off as near as possible, and when the intermediate vat is discharged through the bottom dischargers, the sands during the operation get thoroughly mixed up, thus being in the best condition for treatment by cyanide.

3. Oxidation of pyrites is very slight, so that very little cyanide will be consumed.

The expense of transferring the tailings from the intermediate tank to the leaching tank is so slight that it cannot be considered as an important item.

The cost of charging tailings and discharging the residue has been brought down at the Robinson Mine to 7d. per ton of 2000 lbs., and generally stands in the accounts of other works at about 1s.

Direct Filling.

This method, introduced at the Heriot, City and Suburban, Crown Reef, Paarl Central, and Gedenhuis Estate Gold Mining Companies, consists in passing the pulp, leaving the plates into a hydraulic separator, a kind of crude Spitzlutt. The pulp is here divided into two streams, one overflowing, carrying slimes with very fine sands, the other consisting of coarse sands, some fine sands and slimes, which are conveyed by means of an india rubber hose to the leaching tanks, in which one or more Kaffirs are employed to effect the even distribution of the pulp, by moving the hose about to different parts of the vat. The water passes off by adjustable gates fitted inside the vats, carrying with it fine sands, slimes, and some coarse sands.

The advantages of this process are:—

1. This method treats pyritic tailings with the minimum of oxidation, as they are not exposed to the action of the air from the time they leave the battery.

2. A second handling of the tailings before treatment is avoided.

3. A preliminary rough concentration, or rather classification, of the coarser particles of the tailings is effected.

There is at present a great controversy going on regarding the advantages of direct filling, as against intermediate filling.

The Filter or Leaching Tanks.

These are in most instances made circular, being the strongest, and they are from 20 to 42 feet in diameter, and from 8 to 14 feet in height, and should be constructed of well seasoned lumber with staves 3 or 4 inches thick, having their inner and outer faces cut to correspond to the arc of circle of the tank, and their edges radial to this circle. The staves are not tongued or grooved, the pressure of the hoops being sufficient if the tank is well made, to make the same perfectly tight. The staves should be at least 1 foot longer than the inside depth of the tank, and gained from 1½ inches into the bottom timbers, with a chime of several inches.

The bottoms are made of 3 by 9 inch deals, tongued and grooved, and put together with white lead or litharge and glycerine. The hoops should be made by wrought iron rods from ¾ of an inch to 1½ inches in diameter, according to the size of the tank, with threaded ends passing through wrought iron lugs and tightened by hexagonal nuts. When the tanks are of a large diameter these hoops are made in sections.

The outside of the tanks can be painted in lead paint.

The bottom of the vats rest on wooden beams 6 inches by 9 inches, placed 18 inches apart. These beams are placed across the stone foundation, and rest in their turn on planks 1½ inches by 11 inches. These planks are merely put between the stone foundation and the beams to ensure a perfectly level surface. The construction of these vats should only be entrusted to experienced coopers, and particular care should be taken to make the foundations solid.

The filters are constructed of wooden slats 1½ inches by 4 inches, set 12 inches apart, fastened to the bottom by wooden pins. Grooves ¾ of an inch deep and 3 inches wide are cut in a number of places in the bottom of these slats to allow a free passage of the solution along the bottom. On top of these slats are laid strips of wood 1 inch by 1 inch, only 1 inch apart from each other, making openings 1 inch square. Between the ends of this wooden grating and the inside of the tank, an annular space about 1½ inch wide is left, which is partly filled by a strip of wood 1 inch thick, bent to the circle of the tank. Over this and the slats is placed cocoanut matting and burlap, and held by a rope ½ an inch in diameter, which is driven into the space remaining between the strips of wood and the staves of the tank. On top of the matting are laid again slats of wood 1 inch by 3 inches, parallel one to the other, about 6 inches apart, their object being to protect the matting from being injured when shovelling the tailings through the man holes into the trucks below.

The stone foundations are usually 8 feet 6 inches high, above the level of the rails, and are composed of a series of walls closed at their ends, leaving one or two passages underneath for the trucks.

Each leaching vat has a separate drain pipe, 1 to 2 inches in diameter, and these pipes are so arranged in the extractor house as to lead the strong solution to the strong extractor box, and the weak solution to the weak extractor box. In some works there is one main collecting drain pipe for strong solution and one for weak solution.

Filtration is best assisted by causing a vacuum under the filter bed, by connecting the drain pipe with a steam pipe and passing a jet of steam through the same: a vacuum is created under the filter bed.

I will also mention that the best and cheapest method of discharging the tailings from the leaching vats is to sluice them out from a side door, but for this purpose a stream of running water is required, which on these fields is not available.

Mr. Feldtmann describes a system of discharging tailings from the leaching vats through a bottom discharge door into a launder, whence a copious stream of water carries the residues into the creek below.

The discharge doors can also be made on the side of the vat when the residues are to be sluiced out.

The round wooden filter vats on these fields are discharged by bottom discharge doors, which are closed by means of Butters' discharge lids. According to the size vats there are two, four, six, or eight of these discharge openings to each vat.

The cocks and valves should be of iron.

Pumps.—Several pumps are used to raise the solution from the pumps to lixiviation tanks, and to provide circulation if needed. Centrifugal pumps are mostly used on these fields.

The Stock Solution Tanks.

There are generally three solution tanks at each plant, built very much the same as the leaching tanks, with the exception that they have no filters, man holes, &c.

Inside the tanks are gauges indicating the volume of solution. The stock solution tanks are usually 20 feet in diameter, and from 7 to 14 feet in height. One is for strong, one for weak solution, and one for alkaline wash. Every foot in height in a 20-foot tank represents 10 tons of solution, of 2000 lbs. per ton.

The Zinc Precipitation Boxes.

These are made of 1 to 2-inch boards, and are oblong boxes of various dimensions, which have to be in proportion to the quantity of solution which passes through them.

In large works these boxes, of which there are usually four, are 20 or more feet in length, 3 feet high, and 3 to 4 feet wide.

There are separate boxes for the strong and for the weak solutions to pass through.

The precipitation box is divided into several compartments by partitions and baffle boards in such a way that the solution is forced to flow upward through the zinc shavings which are held in trays several inches above the bottom of the troughs.

The first division has not got any zinc shavings in it, as here the solution enters, and any sediment or fine slime which may have passed through the filter settles here. If any intermediary settling tanks are used this first compartment can be utilised also to hold zinc shavings. From the first compartment the solution flows over the partition and then down the space B and upward through the tray C holding the zinc shavings. The baffle board D is held in place in position by being nailed fast to the sides, and reaches a few inches above the level of the solution, which passes downwards and upwards until the last partition is reached, and from here passes through a pipe to the collecting sump or tank.

The zinc box compartments are fitted with removable trays, made of wooden frames, supporting wire screen of ½ inch mesh. The gold in the solution settles on the zinc as a brown coating, and which soon accumulates in a finely-powdered state falls through the screens to the bottom of the trough. In the last partition of each box there is no zinc, but the tray here is utilised to hold cyanide of potassium in lumps to make up the standard strength of the solution before being pumped into the storage tanks.

Over the zinc there is placed a light wooden grating, and the whole trough can be covered by a strong wire netting to secure against theft, as it can be kept under lock and key. The method of making the clean-up will be described later on.

To be continued.)

* Summary of a paper read before the Institution of Mining and Metallurgy on Wednesday last.

The LIST for SUBSCRIPTIONS will open on MONDAY, the 26th NOVEMBER, and close on or before TUESDAY, at 4 p.m., for London; and on or before WEDNESDAY, at Mid-day, for the Country.

THE LADY LOCH GOLD MINE, LIMITED,

Coolgardie, Western Australia.

(Incorporated under the Companies' Acts, 1862 to 1890.)

CAPITAL £70,000.

DIVIDED INTO 70,000 SHARES OF £1 EACH.

Of which 25,000 Shares are now offered for PUBLIC SUBSCRIPTION. Of this £5000 will be appropriated to cover the Vendors' outlay already incurred in opening up the Mine and other expenses, and the balance to provide £20,000 Working Capital, payable as follows:—2s. 6d. per Share on Application, 7s. 6d. per Share on Allotment, and the balance in calls of 2s. 6d. each, at intervals of not less than One Month as and when required.

Directors.

E. T. GOURLEY, Esq., M.P., Roker, Sunderland (Chairman Sunderland Tramways Co., Limited).

GRAHAM KING, Esq., C.C., 63, Aldermanbury, E.C. (Director of the United Limmer and Vorwole Rock Asphalt Company, Limited.)

J. RUSSELL CLIFFERTON, Esq., Stafford Lodge, Upper Norwood, S.E. (Director of the Day Dawn P.C. Gold Mining Company.)

*STEWART H. PRELL, Esq. (Messrs. Prell, Russell, and Co., 72, Bishopsgate Street Within, and F. W. Prell and Co., Melbourne.)

*Will join the Board after Allotment.

Local Directors.

LORD PERCY DOUGLAS, Member of the Local Board of the West Australian Gold Fields (Limited), Coolgardie, W.A.

F. C. MONGER, Esq., Member of the Legislative Assembly for York, W.A.

Bankers.

THE CAPITAL AND COUNTIES BANK (Limited), Threadneedle Street, London, E.C.

THE BANK OF AUSTRALASIA, Perth, W.A.

Solicitors.

LONDON: Messrs. HENRY KIMBER AND COMPANY, 75, Lombard Street, E.C.

WEST AUSTRALIA: Messrs. PARKER AND PARKER, Perth.

Auditors.

Messrs. FORD, RHODES, AND FORD, 23, College Hill, E.C.

Secretary and Offices.

C. C. RAWSON, Esq., 9, TOKENHOUSE YARD, E.C.

ABRIDGED PROSPECTUS.

This Company is formed to acquire and work the Lady Loch Gold Mine, situate on the Coolgardie Gold Field, about one mile and a half south-west of the famous Bayley's Reward Claim, and adjoining the Lady Forrest Gold Mine. A plan of the property will be found with Prospectus.

The property is held under a gold mining lease, "No. 335" of the Coolgardie Gold Field, and consists of about 12 acres, granted by the West Australian Government on the usual conditions, and is now held in trust for the Vendor and his assigns by Lord Percy Douglas and the Hon. Stephen Henry Parker, M.L.C., Colonial Secretary of West Australia.

The working capital has been fixed at £20,000, which is considered ample for successfully working and developing the Mine.

Lord Percy Douglas, who is well known as one of the earliest prospectors at Coolgardie, has expressed his confidence in and high opinion of this Mine. In sending samples of the quartz from this Mine he writes:—

"You will notice they are of a nature which would not permit of 'picking,' and are, as will be evident to you, taken from a good 'solid reef,' which only requires developing to become, within a very short period, dividend-paying."

"It is now beyond the shadow of a doubt that Coolgardie is a permanent goldfield; the developments within a very large area continue to be in the highest degree satisfactory, and with the advent of railway communication, which will permit of the general erection of machinery, there can be no doubt that the results will be such as will astonish the world, and will probably eclipse all previous records."

"The Mine is a good one, and on the best line of reef."

Samples of the above quartz have been submitted to Messrs. Johnson, Matthey, and Co., for assay, and the following is their Report upon the same:—

"London, 28th October, 1894.
We have assayed the samples of quartz as under, and find the following to be the result:—Product of gold, 35 ozs. 15 dwt. per ton of 2240 lbs. of quartz."

The following report goes to confirm the high opinion which the directors have of this property:—

Mr. J. Francis Marke, F.G.S., A.M.M.A., who has visited the Lady Loch Gold Mine, and has just returned from the Coolgardie Gold Field, of which he has an intimate knowledge, reports upon the property as follows:—

London, 7th November, 1894.

To Messrs. Prell, Russell, and Co.

I beg to report as follows upon Mining Lease 335, Coolgardie, known as the Lady Loch Mine:—

The lease embraces twelve acres of ground, situate about 2½ miles S.E. of Coolgardie Township, just across the prominent range there running north and south.

An auriferous quartz reef, occurring in the usual diorite rock formation, runs through the property from N.W. to S.E., giving about 600 feet of the line of reef inside your boundaries.

When I first saw the mine on 3rd May, 1894, a shaft was down about 15 feet in the reef from the surface, the width of stone showing being 3 to 4 feet. Gold was freely visible in much of the stone raised, and I expected equally favourable development when greater depth was attained. This opinion, I see, has been amply confirmed by your telegram of 22nd August, announcing the striking of splendid gold at 50 feet.

The quartz is of the usual kindly character found in the Coolgardie district, and at water level will lose the surface iron stains and change into a white solid stone well mineralised and laminated. The reef apparently has an easterly underlie.

The Mine is well and favourably known locally, and I was frequently on and near it in July, while inspecting the adjoining claim East, where there is a very fine reef, with the southern extension of which yours appears likely to junction. There are other mines closely approaching your property which is thus favourably located.

You have an exceptionally fine site for water catchment, being immediately at the foot of the East fall of the high range alluded to above. The little flat or valley, part of which you occupy, was (according to reliable information given me on 29th June last by a prospector living there) under water after the heavy rain in 1893.

With the first good rain, therefore, all moderate requirements will be provided for by the 20,000 gallon tank you have excavated, while, with regard to a supply of water for gold saving, it can be conserved similarly, or got by sinking.

I am, however, very strongly of opinion that a process of gold saving not needing a large water supply will ultimately come into use on Coolgardie.

Timber is plentiful.

You have a good reef in your property carrying both coarse and finer gold, the latter, of course, being what must be mainly depended on. There will be no difficulty in saving it with ordinary facilities.

A working capital of £12,000 to £15,000 should, in my opinion, be amply sufficient for thoroughly and successfully developing this mine.

Work has been steadily progressing at the Mine, and by a Press cable received at Perth on the 22nd August last, it was announced that splendid gold had been struck in the Lady Loch Mine at 50 feet. Cable advice since received from Lord Percy Douglas confirms this information, and shows that three shafts have now been sunk—viz., to the depths of 50 feet, 25 feet, and 18 feet respectively, all of which show excellent results.

The intention of the Directors is to erect machinery and push on operations vigorously at the Mine as soon as the capital is subscribed.

The purchase consideration for the Mine has been fixed by the Vendors at £50,000, payable as £5000 in cash, and the balance in fully paid up shares by the Vendors.

The following contract has been entered into, namely, a contract dated the 23rd day of November, 1894, between T. Harrison Davis of the one part, and the Lady Loch Gold Mine Company (Limited) of the other part.

Agreements and other arrangements have been made for the payment of the charge and expenses attending the formation and registration of the Company, and other expenses, attending the issue of the Company's capital, which may technically be contracts within the meaning of Section 35 of the Companies' Act, 1867. Applicants for Shares shall be deemed to have notice thereof and to waive their rights to any further particulars as to the dates and names of the parties thereto or otherwise, and shall accept this as a sufficient compliance with the said Section. They shall also be deemed to have agreed with this Company, as trustees for the Directors, and other persons authorising the issue of the prospectus, to waive any claims they may have relating thereto.

The statements in the prospectus are based upon the sources of information above referred to, and the Directors and others have taken the greatest care to insure their accuracy, and to satisfy themselves that they are made by competent and reliable persons, and applicants for Shares shall be deemed to waive any claim in respect of a mis-statement (if any) innocently made, or any inaccuracies in the sketch map published.

The original reports and copies of the Memorandum and Articles of Association and of the above-mentioned contract can be inspected, until the first allotment of Shares, at the Office of the Solicitors to the Company.

The Vendor pays all expenses of and incidental to the promotion and formation of the Company up to the first allotment of Shares.

Applications for Shares must be made on the form accompanying the prospectus, and forwarded to the Company's Bankers, together with a remittance for the amount payable on application. In cases where no allotment is made the amount deposited on application will be returned at once without deduction. If the number of Shares allotted be less than that applied for, the sum will be credited in reduction of the amount due on allotment, so far as necessary, and any balance will be returned.

Prospectuses and forms of application may be obtained from the Bankers and at the Offices of the Company.

MINING IN CORNWALL

AND DEVON:

NOTES ON MINING IN THE WEST.

(BY OUR SPECIAL CORRESPONDENT).

THERE has been a good deal of grumbling among the miners in several districts over the proposed 10 per cent. reduction of wages, but there is no probability of the discontent assuming the active form of a strike. There is no organisation whatever behind the men, and the most reasonable among them realise that many mines would never re-open if the engines stopped for any length of time and the levels filled with water. Captain Josiah Thomas is credited with having addressed some very straight remarks to the Dolcoath employees on the last pay day, and the men are said to have been much impressed. The fact that the salaries of agents and purser are to be cut down as well as the wages of the miners has disarmed a good deal of criticism.

At Blue Hills meeting there was anything but an expression of gloomy forebodings, although the shareholders were face to face with the fact that their mine was flooded, and that the continued depression had taken the heart out of the shareholders in Cornish mines generally. The flood had put them in a still more unfortunate position, because, in addition to filling up the productive parts of the mine, it had so interfered with the dressing operations that a whole week's tin had to be omitted from the accounts. But for this a call of 2s. would have been ample, and the shareholders would have had to congratulate themselves on holding their position so well in spite of adverse circumstances. Blue Hills is an excellent property, and, with the vigorous development which is now the policy of the executive, it will be surprising if a good bunch of tin is not met with before long. There are three or four points which ought to be pushed on with all speed, and which offer splendid chances of success.

THE lesson of the floods is the importance of surface draining, and the teacher is Captain James, of Wheal Basset. Greater fear was expressed for the safety of this mine than of any other in the Camborne district, because of the great quantity of water which, under ordinary circumstances, they have to contend with, and which if materially increased would pass beyond their power to control. It is satisfactory to know that although the water has quickened, yet up to the time of writing the engine was able to keep the water. This result has been achieved solely by the forethought of the manager in paying the attention which it deserves to the subject of surface draining. The surface works at Wheal Basset have been remarkably well attended to, and, although this has not been accomplished without the expenditure of a good deal of money, it has amply repaid the adventurers. Very much more might be done in most of the mines towards preventing the water from finding its way underground, and the managers will find that it is much less costly to drain the surface than to have to pump the water from 300 or 400 fathoms.

CARN BREA and Tincroft meetings will be held on Tuesday. A heavy loss will again be shown at Carn Brea, and it is improbable that the Tincroft shareholders will have the satisfaction of receiving a dividend. Thus does the number of paying mines in the county become small by degrees and beautifully less. Mr. Strauss is expected to attend the meetings and to make some remarks with regard to market prospects. It is also anticipated that he will reply to the recent statements of Captain Frank Oats respecting the output of the Swaziland tin fields.

It will be seen from the report of the agent of the Wheal Friendly Mine that the Pink lode still maintains its value. We understand that the Chairman of the company has recently visited the property with the view to more vigorous development. The meeting of shareholders is called for the 30th inst., when we have no doubt a satisfactory programme for the ensuing quarter will be fully set forth.

BUSINESS on the share market continues to be practically at a standstill, and is likely to continue so, pending some improvement in the tin market. The prices quoted are practically nominal, but with the least indication of an improvement there would certainly be a sharp rise in the shares of progressive mines.

THE adventurers in Phoenix and West Phoenix United Mines will assemble at a special general meeting on the 29th inst., at Webb's Hotel, Liskeard, for the purpose of considering and passing resolutions for the voluntary winding up of the company; the appointment of liquidator or liquidators; and for empowering the latter "to sell the same in one or more lots as a 'going concern,' or 'going concerns,' or otherwise." Now, we think it would be a great pity if the shareholders let go such a property as this. In spite of the great depression in the tin market we would encourage them to hold on for a short time longer, in the hopes of a better price in the spring of next year.

MR. JOSEPH MYLCHREEST, the Manx Diamond King, has arrived in London.

THE production of the Ruda Mines, Transylvania, for the month of October amounted to 49,215 grammes.

A NUMBER of rich specimens from Menzie's Find have been brought into Coolgardie. The reef is said to consist of good battery stone, and Mr. Saunders considers that it will average 7 to 10 ounces per ton all through. The surrounding parts have been pegged off for miles.

It is stated that a seam of coal of great extent and thickness has been discovered near Tokod, in the district of Gran, North-Western Hungary.

DEATH OF A WELL KNOWN MINING ENGINEER.—It is with the deepest regret that we record the sudden death from apoplexy of Mr. Alfred Hancock, M.E., M. Inst. M.M., of Townsend-Crescent, Plymouth. Deceased was the second son of the late Captain John Hancock, of St. Agnes, Cornwall. Mr. Hancock was a thoroughly practical mining man of great integrity, straightforwardness, and uprightness. He had seen much of the world, having visited North and South America, Bolivia, Mexico, and Corsica; he was for many years engaged with the firm of Messrs. John Taylor and Sons in Spain, and latterly with Lord Swanson, also exploring and inspecting for Messrs. Delfin, Sanchez, and Co., and in June returned from Spain, where he had been general superintendent of the Toro Mines, after an absence of over two years, apparently in perfect health. He leaves a wife and daughter. Deceased was 52 years of age.

NEW ISSUES.

TOWN PROPERTIES OF WEST AUSTRALIA (LIMITED).

THE capital of this company is £250,000, in 250,000 shares of £1 each. "This company has been formed," says the prospectus, "for the purpose of acquiring and developing freehold lands, town lots, and building sites in Western Australia, erecting buildings, and transacting such business as is usually carried on by a land and mortgage company. The remarkable discoveries in the gold fields of Western Australia during the last year have attracted universal attention to the colony, and there are ample grounds for believing that at the present time a most favourable opening exists for the profitable employment of capital in the manner indicated. The total area of proclaimed gold fields of the colony exceeds 130,000 square miles, and a large number of mining claims have already been taken up, and companies formed to work them. The reports and accounts of the gold finds and the richness of the ore discovered have so often been referred to in the daily and weekly newspapers at home as well as in the colony, that further reference to them is unnecessary.

"The gold discoveries have generally been made in hitherto uninhabited districts, causing need for buildings of all kinds, and leading to the springing up of new towns. The history of new gold fields in various parts of the world shows that wherever gold has been found in paying quantities people are attracted from all parts, towns are laid out and developed, and land and buildings increase very quickly in value. Johannesburg, in South Africa, which has only been in existence about 10 years, and which has now a population of about 50,000 whites, is a notable instance of the beginning and extraordinary growth of a town due to the discovery of gold. Coolgardie, which about two years ago was not in existence, is now a thriving town, possessing hotels, banks, stores, &c., and the electric light is about to be introduced; the Government is about to extend to the town the railway which is now running from Perth and Albany to Southern Cross; the telegraph line is already open; and there is a regular mail coach service for passengers and letters between Southern Cross and Coolgardie.

"The development of Coolgardie has, however, been so rapid that the mail service has been utterly insufficient to deal with the quantity of letters, newspapers, and small packages forwarded to Coolgardie, Hannan's, White Feather, Broad Arrow, Kurnalpi, and other outlying places which have sprung up during the last twelve months; the mail service has consequently been supplemented by the 'Cycle Express.' This company has arranged to acquire a building site in the principal street of Coolgardie, on which a stone building is being erected, which will contain suites of offices, shops, and a large hall suitable for an Exchange, and the rental receipts are expected to prove very remunerative. The company will defray the cost of erecting and completing the above building. Six additional building sites in Coolgardie, five of them in the principal street, will also be acquired, and the building of premises for the Coolgardie Club, on one of these sites, is to be immediately commenced. Nearly all the erections at Coolgardie are of temporary character, and no doubt profitable business can be done by advancing money on mortgage for the purpose of erecting permanent structures.

"Other towns are being laid out in various parts of the gold fields, and it is believed that in each of these towns there will be scope for remunerative and safe business by securing town sites at an early stage, which can be done through the agents of the West Australian Gold Field (Limited) and the London and Western Australian Exploration Company (Limited). The Hon. H. J. Saunders, one of the directors, from his special knowledge, will be able to give valuable advice and assistance to the company, and Messrs. Bewick, Moreing, and Co., who have several representatives in the colony, have signified their willingness to act as chief agents of the company. Whilst the developments at the gold fields are proceeding at a rapid pace, the City of Perth (which is the seat of Government) is also increasing, and it is believed will continue to do so. The company will acquire the right to purchase the large and valuable Osborne Park freehold estate at Perth, and 125 acres adjoining, under exceptional circumstances. The estate is situated about 2½ miles from the railway station, the main north road running through it, and the city is rapidly spreading in this direction. The Hon. H. J. Saunders, who is resident at Perth, was requested by cable to obtain a valuation of the 'Osborne Park' freehold estate at Perth, and has cabled in reply under date October 5:—'Osborne, reliable valuation has been made, the property comprises 6800 acres, average about £12 10s. per ton, the experts report favourably, and are sending report and plan by this mail.' This valuation shows the 'Osborne Park' estate alone to be worth about £85,000."

THE LADY LOCH GOLD MINE (LIMITED).

The capital of this company is £70,000, divided into 70,000 shares of £1 each, of which 25,000 are now offered for public subscription. The prospectus states that the company "is formed to acquire and work the Lady Loch Gold Mine, situate on the Coolgardie Goldfield, about 1½ miles south-west of the famous Bayley's Reward Claim, and adjoining the Lady Forrest Gold Mine.

"The property is held under a gold mining lease of the Coolgardie Goldfield, and consists of about 12 acres, granted by the West Australian Government on the usual conditions. The working capital has been fixed at £20,000, which is considered ample for successfully working and developing the mine."

Lord Percy Douglas, who is well known as one of the earliest prospectors at Coolgardie, has expressed his confidence in the high opinion of the mine. In sending samples of the quartz from this, he writes:—"You will notice they are of a nature which would not permit of 'picking,' and are, as will be evident to

C. PASS & SON (Limited), BRISTOL,
ARE BUYERS OF
LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,
ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c.
and DROSS or ORES containing
TIN, COPPER, LEAD, AND ANTIMONY.

PACIFIC MINING AGENCY AND TRUST COMPANY.

A Corporation organised under the Laws of the State of California.
CAPITAL STOCK, £50,000.

BOARD.

IRWIN C. STUMP (Chairman), Manager of the Estate of the late U.S. Senator Hearst.
IRVING M. SCOTT, Manager Union Iron Works.
JACOB H. NEFF, President California Miners' Association.
P. N. LILIENTHAL, Manager Anglo-California Bank (Limited).
W. F. GOAD, Vice-President, Wells, Fargo, and Co.
D. M. BURNS, Capitalist.
R. C. CHAMBERS, Manager Ontario Mine, Utah.
WILLIAM C. RALSTON, Secretary (Secretary California Miners Association).
BANKERS—The ANGLO-CALIFORNIAN BANK (Limited).
HEAD OFFICE—MILLS BUILDING, SAN FRANCISCO, CAL.

THIS COMPANY sells Miner, Mining Claims, Ditch Properties, and Water Rights ON COMMISSION, and will act as Agent and Broker for the Sale and Purchase of such Properties.

It is intended to conduct the Purchase and Sale of Mining Claims, Ditch Properties, and Water Rights on the same basis as a real estate transaction.

The Company is prohibited by its Articles of Incorporation from buying or selling on its own behalf, or except upon commission, or as agent or factor for others.

The buyer pays no fees whatever, and there is no incentive to advance the price beyond the original figures at which the price and commission have been agreed upon with the seller.

It is not intended only to negotiate the sale of an entire property but interests in such may be sold or money obtained for development work.

This Company especially solicits the business of making reports or examinations for non-resident mine owners on any of their mines in the United States, and obtaining special information as to their condition and so forth (said reports being confidential).

Those who conduct the business of the Company have had long experience in mining operations, and it is their intention to place the Company in a position to inspire the confidence of all who seek its assistance in its integrity and fair dealing.

We respectfully refer to any Bank in the City of San Francisco and to the Anglo-Californian Bank (Limited), London, as to the standing of the Board of Directors of this Company.

Descriptions of properties for sale with maps, reports and all necessary information, are left on file in the office of the Company. Abstracts of such reports with prices of mines will be furnished upon application.

California has produced £267,000,000 in gold, and is still producing £2,680,000 a year. There are thousands of claims requiring capital for development. In other Pacific Coast States and Territories there are abundant opportunities for investment in mines of gold, silver, copper, lead, coal, and so forth. Information concerning these will be furnished by this Company on application.

This Company will also furnish competent engineers, superintendents, foremen, miners, millmen, assayers and others connected with the mining industry on application, furnishing their references and so forth.—Cable Address, "CHAPIN," San Francisco.

THE BUTE WORKS SUPPLY COMPANY, CARDIFF.

Telephone : No. 45 (Post Office and National).

Telegrams : Gethin, Cardiff.

WAGONS.—New to Latest Regulations, 50 with one end two Side and two Bottom Doors, Wheels with WROUGHT Bosses, large capacity (12 inches longer and 4 inches deeper than usual), ready for Lettering. New to Latest Regulations, one end and two side doors, sides and ends 3 inch red deal, all inside under-frame timbers of English oak ; delivery, about 15 per week, commencing forthwith. 50 End Tip 10-ton Coal Wagons to New Regulations, equal to new, prompt delivery.

LOCOMOTIVES.—One good second-hand Saddle Tank Loco. six wheels coupled, ready for instant work, and cheap for cash or three years' purchase-lease. 14 inch cylinders, by Avonside Engine Company, now near Cardiff.

RAILS.—Bridge, 14 to 120 lbs. per yard; Flange, 10 to 100 lbs. per yard; Double Head, 30 to 82 lbs. per yard; and Bull Head, 50 to 96 lbs. per yard.

SLEEPERS.—Wood, Iron, and Steel. A quantity of Metre Gauge Steel Sleepers for Sale, Cheap. 1400 new Baltic redwood sawn rectangulars, 8 feet by 8 inches by 4 inches at 1s. 3d. each net f.t. Cardiff.

PORTABLE RAILWAY.—£9 18s. 9d. per 100 Yards of Rail-way (Steel Rails, 14 lbs. per yard, and Iron Sleepers), complete.

EARTH WAGONS.—75 side tipping 30-inch gauge, STEEL wheels and STEEL axles, £5 each, f.o.t. Cardiff.

BRICKS.—Fire and building bricks, also clay.

WE are instructed by the **MOUNT LYELL MINING** and **RAILWAY COMPANY (LIMITED)**, of Tasmania, to **INVITE TENDERS** from

SMELTERS or their AGENTS

for the undermentioned parcels of **RICH ARGENTIFEROUS COPPER ORE** lying at Messrs. Richardson's and Co.'s Ore Wharves, Swansea, and we shall be glad to forward sealed samples of the various lots on application.

Tenders must be lodged at this Office not later than 2 p.m. on Monday, the 3rd of December, 1894, stating the price per ton of 20 cwt.s. (dry weight) for each lot of the Ore, including Copper, Silver, and Gold contents, without any draft or deductions whatever. Moisture, if any, to be taken at the time of delivery.

The Ore to be packed and taken from the Wharf on Warehouse Weights by the Buyer, at their risk and expense, within seven days after the Sale.

Payment to be made by good and approved Bills at two months' date, or in Cash, less Discount, at Seller's option.

Should two or more Buyers offer the same price, such being the highest bids, the ore to be equally divided between them.

It is intended to accept the highest Tender, but we reserve to ourselves the right of declining to sell.

VIVIAN, YOUNGER, and BOND,

117, LEADENHALL STREET, LONDON, E.C.

The particulars are as follows :—

Lot 1	weighing about	Tons.	cwts.
" 2 "	"	8	4
" 3 "	"	8	11
" 4 "	"	4	7
" 5 "	"	2	18
" 6 "	"	2	18
" 7 "	"	3	15
" 8 "	"	3	15
" 9 "	"	2	15
" 10 "	"	2	15
" 11 "	"	2	15
" 12 "	"	2	13
" 13 "	"	2	13
" 14 "	"	4	1

ex "BALLAARAT" (5)

**HENRY WIGGIN & CO. (Limited),
NICKEL AND COBALT REFINERS,
MAKERS OF BEST RED LEAD FOR FLINT GLASS
MANUFACTURERS,
BIRMINGHAM.**

**The Mining Journal,
RAILWAY AND COMMERCIAL GAZETTE:**
An Illustrated Record of Mining, Metallurgical, Railway,
Financial, Industrial, and Engineering Progress.

ESTABLISHED IN 1835.

THE MINING JOURNAL, RAILWAY AND COMMERCIAL GAZETTE, published every SATURDAY MORNING, price SIXPENCE, is recognised throughout the World as being the oldest, most influential, and most widely circulated Journal devoted to the interests which it represents. It circulates

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Amongst Mine Owners, Capitalists, Investors, Mining, Metallurgical, Railway and Mechanical Engineers, Railway Administrators, Manufacturers, &c., &c.

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TO CORESPONDENTS.—Letters on Editorial Matters, or containing literary contributions should be addressed to "THE EDITOR." All matter intended for insertion must be written on one side of the paper only. The return of rejected manuscripts cannot be guaranteed. The Editor invites correspondence and items of news or information from readers in all parts of the World.

TO SUBSCRIBERS.—The Annual Subscription to **THE MINING JOURNAL**, including postage to any part of the United Kingdom, is £1 4s. Abroad, £1 8s. payable half-yearly in advance. It can be purchased at all Railway Bookstalls and Newsagents throughout the United Kingdom for 6d.

TO ADVERTISERS.—The following is an abbreviated Scale of Charges for Advertising :—Companies' Prospectsuses, £12 12s. per column, or £20 per page ; Companies' or Legal Announcements, 9d. per line, with a Minimum charge of 7s. 6d. ; Sales by Auction, Publications, For Sale, Wanted, &c., &c., 6d. per line with a Minimum charge of 4s.

Displayed (Trade) Advertisements of 2 inches in depth (or more), Single Column measure, will be inserted at the following rates :—For 52 insertions 2s. 6d. per insertion for each inch in depth ; for 26 insertions 3s. per insertion for each inch in depth ; for 13 insertions 3s. 6d. per insertion for each inch in depth. Terms for special positions and contracts may be had on application.

ADVERTISEMENTS (which should in all cases be sent direct to THE MANAGER) can now be received for the forthcoming issue of **THE MINING JOURNAL, RAILWAY AND COMMERCIAL GAZETTE**, on FRIDAY, at 18, FINCH LANE, E.C., up till 6 p.m. and at 3, DORSET BUILDINGS, SALISBURY SQUARE, E.C., until 9 P.M.

*** THE MINING JOURNAL**, is neither controlled, nor is any interest in it held or exercised, by any mine owner, speculator or syndicate, and it is in no way connected with any share dealing agency. The position occupied and the views expressed by it are alike absolutely independent.

Editorial and Advertisement Offices:

18, FINCH LANE, LONDON, E.C.

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LONDON : NOVEMBER 24, 1894.

MOTIVE POWER FOR MINING MACHINERY : WATER.

I.

THE most economical of all sources of motive force for mining machinery is undoubtedly water, when there is plenty of it, and nothing to pay for its use. We are not aware of any permanently successful attempt ever having been made to employ wind for this purpose, and although pumping machinery, where the quantity of water to be handled is small, might be driven by a windmill, yet the source is so fluctuating, and the power so variable, that wind does not enter into competition with other and more easily controllable forces as a motive power for mining machinery. Water is the ideal motive force required, and now that electricity has come to our aid, it is a matter of but little consequence whether the mill is erected at

the actual source of water supply, or a few miles away from it provided always that there is sufficient water available on the spot for the operations of milling and concentrating. The power of water depends upon the quantity and the height through which it falls. If the quantity is large, then the height through which it falls, commonly called the head, may be only a few feet, as was the case at a mill with which we were personally connected, where the quantity was as great as that of the Thames at Richmond, and the fall available was only from 3 to 5 feet according as the season was wet or dry. All the power required in this instance was 80 horse, and this was always obtainable. On the other hand, if the head is great, then the quantity required is but small, thus one miners' inch of water under a head of 1000 feet will yield a power of about 2½ horse, and one cubic foot of water under the same head will give 1½ horse power.

The terms miners' inch and cubic foot bring us at once in face of the fact that some standard must be adopted for the measurement of water. Personally, we prefer the cubic foot as the basis, and this quantity weighs 62·321 lbs., and contains 6·23 gallons, each gallon weighing 10 lbs. A measure frequently employed, however, is that of the miners' inch, which, however, is a variable quantity according to the custom of each district, and is the amount of water which flows per minute through an opening 1 inch square under a head of 6 inches, and may vary from 1·36 to 1·73 cubic feet per minute, but is generally reckoned as being equal to 1½ cubic feet. There are many machines for converting the theoretical power of water due to its weight and head into actual horse-power, but these are not all equally efficient for the purpose, as will be seen from the following table, which gives the effective horse-power of different water-motors :—

Theoretical power	1·00
Undershot water-wheels	.35
Poncelet undershot-wheel	.60
Breast wheel	.55
High breast wheel	.60
Overshot wheel	.63
Turbine	.70
Hydraulic ram raising water	.60
Water pressure engine	.80
Pelton water-wheel (high pressure)	.85

The situation of the works, the quantity and head of water available, and local conditions generally, will all influence the choice of the motor. The visitor to the Welsh mining districts will see the hillsides studded in places with the now motionless arms of overshot water-wheels, sometimes arranged in cascade one below each other, at others alone and, it may be, still slowly revolving in situations apparently remote from any mine, until, on closer inspection, a long line of horizontal pump rods is discovered, connecting the wheel with a shaft at a considerable distance away. The turbine, however, is now generally replacing the older form of wheel, and for low heads and large quantities of water this is, perhaps, the best method of obtaining power; but for heads of more than, say, 25 feet, the Pelton water-wheel is the most efficient form of motor.

When water-wheels are employed of the high-breast or overshot type, the diameter of the wheel was made as large as possible, so as to utilise the full head of water, and wheels from 30 to 40 feet diameter are common enough. The water led often from very long distances in an open ditch to near the top, or, if possible, over the top of the wheel, and as all is thus open, and exposed to the weather, it frequently happens that the whole arrangement is frozen up in the winter; an accident less likely to happen if the water is conveyed in pipes underground to a turbine sheltered within the mill building itself. As an example of the power obtainable from such a wheel, we may say that a 20 foot diameter wheel with 3 feet 6 inches breast, running at a speed of 5½ revolutions per minute, and using 590 cubic feet of water per minute, would yield about 15 horse

underground out of the influence of the weather, while the turbine itself can be erected in a turbine chamber formed of a pit lined with brickwork, or of a wrought iron flume with an outlet below the wheel for a tail race. If placed in this position the shaft is a vertical one, and drives the main horizontal shafting of the mill through level gearing. In other cases, such as we have seen adopted in American mills, the turbine is placed horizontally, and is contained in a sheet iron case with the shaft projecting from either end, the whole being mounted above the floor level in some warm and unexposed part of the mill itself. One advantage arising from the horizontal position of the turbine is that a pair of wheels can thus be employed on the same shaft, so arranged as to counterbalance each other and thus annul the end thrust to which the shaft is subjected in the case of a single one. The shaft projects from both ends of the enclosing case of the turbine, and on each end there is a small driving pulley. Both of these can be connected to the main shaft of the mill if one of the belts is crossed, or one pulley may drive the main shaft, and the other a countershaft, as may be required.

The erection of such a turbine does not present any difficulty. The great point is to utilise to the full the available head of water, and to leave ample room for the discharge of the spent water. The tail race should, if possible, be larger than the head race, and should be so constructed that when the wheel is not at work there is always a depth of 2 feet of dead water in the bottom of the race. The machine occupies but little space, and must, of course, be fixed on a sound foundation of stone or brickwork or baulks of timber, perfectly level and parallel with the line of main shafting in the mill. As a rule, turbines are made to run at a high rate of speed, which has to be reduced by belt or spur-gearing before it can be utilised, although, if required, as in the case of electric machinery, it can be coupled direct on to the shaft of the dynamo. As illustrations of the power developed, we may say that a turbine of the Victor type, 15 inches diameter, running at a speed of 323 revolutions per minute, will develop nearly 30 horse power under a head of 19 feet of water, of which it would require 974 cubic feet per minute. For greater powers the speed is less; a wheel 35 inches in diameter under 18 feet head, running at 152 revolutions per minute, would yield 151 horse power, and require nearly 5000 cubic feet of water per minute. In both cases the percentage of useful effect is high, being in the former 87 per cent., and in the latter 84 per cent., the theoretical power being 100. The smallness of these machines, as well as that of the Pelton wheel, which we shall next consider, is a striking feature when compared with the power developed; and it is a remarkable sight to see a large mill with a long row of stamps and numerous contrivances driven by an unpretending machine of small dimensions humming away in a corner.

NOTES AND COMMENTS.

MR. EISSSLER's paper on the cyanide process was instinct on Wednesday with an interest which kept the theatre-full of members of the Institute of Mining and Metallurgy closely attentive for nearly three hours. The treatment given to the subject was eminently Teutonic in its unwearied elaboration and exactitude of detail, its able and imposing marshalling of the authorities, and the incisive manner in which the author repeatedly struck right home to the fundamentals. In something under an hour and a-half the audience were put into possession of the leading results of a lifetime's experiment and research. It was remarkable that in the after speeches criticism became rather a laudation than a fault finding. Even in an assemblage of experts where what is called the utmost rigour of critical procedure is unsparingly meted out to the occupant of the reading desk, there was very little of an unfavourable character urged against the author. Several gentlemen came with complimentary fire-works darkly concealed within the recesses of coat pockets, but the time was too short for a general illumination, and the concluding proceedings had to be rigidly confined to a privileged circle. There is hardly a necessity to commend the Council of the Institution for deciding to print and distribute papers some days before the meeting. Criticism originated upon the moment is apt, in the nature of things, to be at least perfunctory, and even, perhaps, perverted. Speaking after a seven days' possession of the paper, there can be no excuse for any member who thrusts at random, mistakes the issue, and exhausts himself upon the non-essentials.

ANXOROS of Mr. Eissler's address we note that the value of cyanide is being recognised out in Brazil. The directors of the Ouro Preto Company have just issued their voluminous annual report, which, though not of a very brilliant kind, sounds distinctly hopeful. The quantity of ore crushed was certainly not so great as in the year previous, but this is satisfactorily accounted for that it need occasion no anxiety in the minds of shareholders, especially as the value of the gold produced amounted to £4511 7s. 8d. more. Of this about £3500 was saved, we are told, by the improved method of treatment, the remaining £1000 being due to the better quality of the ore. Referring to the cyanide process, the directors put it thus:—"The further trials that are being made at the mines with the cyanide process tend to confirm the opinion that this process can treat satisfactorily the concentrates which are now chlorinated, and if the quantity is much increased, it may be desirable to adopt the process in conjunction with the chlorination work." The directors hold out hopes that the profit for the ensuing year—unless the exchange continues to rise, and a corresponding reduction in wages does not follow—will be sufficient to pay a dividend to the shareholders, in addition to providing the sum required for the annual redemption of debentures.

In spite of the depressed condition of the copper market, and other conditions which have militated against successful operations, the Devon Great Consols Company has again passed through a very successful half-year, and has once more falsified the pessimistic predictions of a certain section of the shareholders. At the meeting to be held next week the directors will present what, in our opinion, is a very favourable report, and we hope to see it accepted by those present in a spirit of unanimity. The amounts received for copper ore and arsenic during the six months have been £13,752 15s. 4d., which, with the amount of a copper sale, makes a total of £14,289 11s. 6d. At the forthcoming meeting, in accordance with the custom which has prevailed of late, a dividend will be declared, and one which will, we have no doubt, give satisfaction to the shareholders. As this is the "Jubilee Year" of the company, we cordially offer our congratulations, and express the hope that the company will experience once again its old days of prosperity.

MR. GROTHÉ's report on the condition of the Poorman Consolidated Mines is written with temperance and judgment not always to be met with in literature of the kind. There is about it an almost ostentatious avoidance of exaggerated encomium, which clearly marks the author as a man of cold and deliberate opinions. No hopes of phenomenal dividends are held out, but proceeding upon reliable premises, "it is clear that not only will the expenditure required for the building of a new mill, which I estimate at \$40,000, be fully justified, but the shareholders may also look forward to a handsome return on the capital already invested in the undertaking." Shareholders could hardly wish to be spoken to in less emotional terms. Then there is the similarly coldly-reasoned remark that "a very careful investigation of the mine has produced the impression upon my mind that the property may be called a very valuable one, well opened up, and capable of producing at once, and for several years to come, about 60 tons of ore per day—that is, sufficient to keep a 30 stamp mill going." Clearly, these sentences justify the hope that, under the changed conditions, and with the new mill, the concern will ultimately become a successful one.

THE depression hanging over the West Australian Market has remained longer than most men anticipated. A corresponding collapse after the indiscriminate buying was very generally looked for, but a date nearer to the Christmas season was fixed for its occurrence. It comes earlier, however, and the numbers of companies that were spoken of as likely to appear were for the most part put off indefinitely. A change of popular favour was made into the South African Market which had been for so long left in the shade, and now things are moving merrily enough there, and stories come to hand about brokers stooping Atlas-like beneath an oppressive weight of business. Thus the balance swings from market to market, and if there is anything in the educational value of the past there will not be a long period intervening before another boomlet bursts over the West Australian market. It will no doubt come earlier and stay longer if the better set of West Australian companies are put upon a sound, dividend-paying footing. It is remarkable, however, that even the large dividends already in some cases paid have not yet led to a better demand for this class of shares. It can hardly, however, long remain thus.

WHATEVER may be the issue of the Governmental enquiry into the present state of the company law, we may at least hope that the present conglomeration of scrappy enactment will be codified and brought into one form. It is not at all conducive to the clearness and force of the present provisions that they should be distributed broadcast over the statute book without even the merest rudiment of an attempt to weld them into a compact and explicit whole. Something more, however, than mere symmetry is required. The limits of the law are at present much too broad, and enable the shady company promoter to pursue the work of comprehensive swindling with very little heed of consequences. As has frequently been pointed out, the difficulty is to catch the wrong-doer in the net, and leave at the same time the honest man untrammelled. Reform in this direction, as in others, is upon that account a very difficult and delicate task, and should be the work largely of specialists and men of the broadest possible experience. But while the task is one requiring the utmost skill of the legislator, there is no doubt of its necessity—the imperative necessity of protecting the guileless investor against the unscrupulous dealings of the City sharper.

THE progress of Brazil along the path of orderly government and commercial and social stability has latterly been sufficiently marked to delight national and patriotic ideas. To a mind steeped in European prejudices there might seem to be still a good deal to be desired. But the railway systems are rapidly perfecting themselves, land is hardening in value; while socially the education is, in some measure, being directed as well towards the formation of character as to the spread of knowledge merely as such. Several new papers have recently been started, each with a self-constituted mission. One of the most significant of these, as reflecting the newly-born ambition of the people, is one whose aim is to emancipate the Republic from commercial and industrial dependence on Europe. This happy consummation is, at least, far enough away, and until the bloods of the different races populating the Republic are rather more closely commingled, and until the characters of the nation have become more fitted for the duties of pacific self-government, there is not much chance of the country settling down to permanent order. Those who have, or believe they have, the large gift of forecasting events, have looked on to a time when the United States of North America shall have stretched its dominion downwards (through Mexico and the Isthmus) to Terra del Fuego. Whether there is any substance of probability in the prophecy is a matter of opinion; but in any

case a more formidable barrier to the expansion of Jonathan's dominions would be a firmly governed and internally united Brazilian Republic.

SEEING the wonderful progress made in South Africa by the mining industry, which is owing, in every way, to the adoption of modern and improved scientific methods, it is surprising that electricity has not found greater favour than it has. At the present moment steam is still the universally-adopted motive power. However, there is plenty of evidence furnished by mine-owners and engineers that they are becoming more enlightened as to the value of electricity for the generating of power. In other parts of the world it has been more generally adopted, with great success. There is no need, of course, to enlarge here upon the qualifications of electricity for performing the most arduous conditions of mining service. They are pretty well known by this time all over the world. Besides, we have not been backward, from time to time, in advocating its merits. We do not despair of seeing it in vogue, in the not distant future, on the majority of the gold mines of the Rand.

THERE is a fashion in company promotion and management, as in most other things, and to-day the fashion is combination. Since the diamond companies of South Africa crystallised into two large organisations, there has been a forcible precedent which only required a sort of fillip to become a potent influence making for general consolidation. Something has been said of Mr. Cecil Rhodes being engaged in the perfecting of a scheme for the unification of all the chief Rand goldmines. What the result of such a momentous proceeding would be surpasses the powers of prophecy to indicate. Whether the huge concern would be all powerful, and would roll Juggernaut-like over the smaller companies, or whether it would be too cumbersome a piece of machinery to do its work well, must ever remain a conjecture until the accomplished fact has put the matter beyond a doubt. The information as to this supposed intention of Mr. Rhodes comes from a source generally considered to be reliable, and so cannot at once be placed beyond the pale of consideration. Perhaps we have got something more than the truth, and the plan to be put before the City may be a partial consolidation upon lines already familiar to the commercial world. In any case there is nothing to be done but patiently to await the issue.

RECENT mails from South Africa have contained a number of instances of murderous outrages committed with the revolver. Johannesburg, for instance, has just been made the scene of an affair of the kind. Two men in their cups quarreled; one struck his opponent with a stick, and the latter drew a revolver as a matter of course, shot his fellow, and then quietly gave himself up to the police. Coming after several similar occurrences, this has created something of a sensation, and loud outcries are being raised in favour of a forcible disarmament of the populace. As one of the newspapers—the *Zoutpansberg Review*—points out, the "large towns are no longer mining camps, and what was once a necessary means of personal protection in the Rand, as it is now in the wilder parts of the country, has become simply a menace to public order and a distinct provocation to the commission of crime." Certainly, the inhabitants of a civilised town like Johannesburg ought not to carry fire-arms as an ordinary article of personal equipment.

THE native labour question is always on the carpet (if the simile be permissible where carpets are scarce) in the Rand, and the local philosophers continue to peg away at it with renewed confidence in their ability to fix it for all time. Undeterred by the amplitudes of oratory and literature directed to the subject and by the danger of plagiarism, Mr. William Grant has embodied the results of his observation in a useful little pamphlet, which has the advantage of being written by one who thoroughly understands, and has a practical acquaintance with, his subject. For fundamental principles in the treatment of blacks, Mr. Grant indicates emphatically an "adherence to what is just and fair as between man and man" as a reliable mainspring of action. A fruitful source of friction Mr. Grant discovers in the want of a common language in which the Europeans may transmit their orders, which may be thought to occasion a good deal of unnecessary swearing on the part of the white, and much superfluous sulkiness on the part of the blacks—or rather bronzes. A number of other suggestions are thrown out in this interesting little communication, which may confidently be recommended to the thoughtful attention of overseers.

A CONCURRENCE of causes has brought about a brisk revival of trade at the Cape. Mining in Johannesburg is in a state of effervescent activity. Coal especially is being profitably worked, the local demand for fuel increasing with great rapidity. Most of the leading mines are said to be laying down new plant and machinery, the consequent stimulus to the allied trades being very keenly felt. Business, in fact, is enlivening all round. According to the postal statistics—a fairly reliable criterion, despite the modern tendency to dispatch circulars on very insufficient reasons—the business has increased by 25 per cent. upon the previous year. By far the larger portion of this must be connected directly or indirectly with the mining industry, and with this in view the extent of the expansion is rather surprising, seeing that there has been no Rand boom of any dimensions during the last year or two. So much has been written and said recently of the development of the Rand—the growth of population, the spread of railways, the mushroom-like appearance of buildings—that there is very little left to remark upon. The fact can only be accepted with gratification like the announcement of another record output. An occasional contraction, while it would have very little to recommend it, would at least furnish us with a vivid contrast useful for comparison's sake.

The discovery of gold some little time back at Wagga Wagga, New South Wales, has been reported upon by the Chief Inspector of Mines, Mr. Glee, who speaks very soberly of it, yet not un-hopefully. He mentions that so far only two parties may be considered to have struck payable gold. The quartz veins, he states, occur in slate formation (probably of the Devonian period) in short lenticular blocks, and in some parts appear as mere fragments. The country rock is hard, and requires blasting, and, therefore, the short block system and the blasting will cause extra expenditure in the working of these quartz veins. At the time of his inspections, parts of the latter were broken down in two of the claims showing gold freely, and which, too, was of good quality. He then hopefully remarks that "there are no doubt numerous quartz veins on the hill surrounding Wagga Wagga, some of which may prove payable, and by which means a mining population may be settled in the vicinity, but at present nothing has been discovered to cause undue excitement, or which would warrant the expenditure of capital for an extensive crushing and gold-saving plant. The discoveries on the Wagga Wagga common rather appear to me as an extension or part or parcel of the Tarcutta gold field. It is very probable that no large payable quartz reefs will be discovered in the locality, but that whatever payable gold is discovered will occur in narrow quartz veins. This part of the country certainly deserves a thorough systematic prospecting."

The hardships which men are willing to encounter in the race for gold received painful illustration a short while since when a wandering journalist came across a bleached unarticulated skeleton in one of the more barren regions of West Australia. There was no mistaking the bony structure for that of a black; the well-formed head and the full angle of the forehead marked the frame as that of a European. All that served for his identity was an initial cut into a neighbouring tree. A natural desire to communicate his identity to the world had led him to carve a few letters into the wood, and it would seem that he had found it impossible to get farther than the G. F. ready by a witness into the marks. The sufferings of the poor pioneer hardly bear reflecting upon. Perhaps his fingers had even closed upon the dust of the precious metal before the fate fell upon him. There is a ghastly irony about the occurrence.

OUR CITY ARTICLE.

FRIDAY EVENING.

THE MINING MARKET.

South Africans strong all through.—West Australians gloomy.—Chartered and Champ d'Or rally.—A favourable finish.

THE exceptional activity of the South African Market has, during this week, offered a striking contrast to the gloom overshadowing the West Australian department. An active but somewhat irregular recommencement of business was made on Monday in the former market. Large blocks of orders continued to arrive from the Continent, and these had a steady effect upon prices, notwithstanding the uncertainties of movement occasioned by profit-snatching. The greatest doubt was manifested by Land shares, but the gold section was not so firmly disposed—at least, in certain directions—as might have been anticipated. Some dealings occurred in West Australian shares, but there was little change in tone, while the different departments of the Miscellaneous sections were rather livelier. Tuesday was another busy day all through the markets. In the South African department stockbrokers were in a state of almost effervescent activity. There were rather large offerings of shares, but the inherent strength of the section was so great that the effect was merely trifling. At the close, indeed, the markets improved, and the tone all round was rather stronger. Chartered, too, hardened at the close, but the other quotations in the same group were not so favourable. West Australians continued dull, but the Miscellaneous Market found its strength in the Indian section where the quotations improved, though to some small extent. A steady, and upon that account, more favourable tone ruled in the market on Wednesday. There was hardly any decrease in the volume of Continental enquirers, but matters were moving into steadier and less sensational grooves. South African shares continued almost to monopolise business, and quietude still reigned in the West Australian Market, where, however, symptoms of a returning tide were said to be apparent. There was no perceptible increase of animation in the markets on Thursday. No exaggerated movements of any kind took place, but the steadiness and buoyancy of the markets was well maintained. About an equal number of declines and rises took place. West Australians were affected by the same dullness as hitherto, and there was little business to record.

British Mines.

There has not been much doing in Cornish shares during the past week, but dealers have not altogether lost heart. There is, however, no desire either to buy or sell just now, and it is not an easy matter to deal in many shares. Risen: None.—Fallen: Carn Brea, 5s.; East Pool, 10s.; Polberro, 2s. 6d.; South Condurrow, 2s. 6d.; South Crofty (allowing for call of 4s. 6d.), 7s.; West Frances (allowing for call), 4s.; and Wheal Kitty, 1s.

South African Shares.

The shares in this market were very active on Monday, the volume of business being great, and upon the whole favourably disposed. Rand Mines had a relapse of $\frac{1}{2}$ to 17s. There were rises of $\frac{1}{2}$ in Van Ryn to 3 $\frac{1}{2}$, and in Modderfontein to 6s. Declines occurred in Ferreira, at 12s., and in Simmer and Jack at 9s., amounting to $\frac{1}{2}$. On the other hand Knight's gained $\frac{1}{2}$ to 22s. Rises of $\frac{1}{2}$ also occurred in Orion at 4 $\frac{1}{2}$ s., and in Afrikander at 16s. Cresus and New Primrose were each lower, the former at 1 $\frac{1}{2}$ s. and the latter at 5s., and a decline of about $\frac{1}{2}$ occurred in Crown Reef, Goldenhuis Estate, Jumpers, Wolhuter, and Gold Fields Deep. Langlaagte Royal improved to nearly 3s., and Glencairn were actively dealt in at 3s. Nigel advanced $\frac{1}{2}$ to 4 $\frac{1}{2}$ s., and East Rand, after touching 39s. buyers left off at 38s. A recovery of $\frac{1}{2}$ occurred in New Rietfontein to 3s., United Langlaagte gaining $\frac{1}{2}$ to 1 $\frac{1}{2}$ s. Consolidated Deep dropped $\frac{1}{2}$ to 3 $\frac{1}{2}$ s., and a relapse of $\frac{1}{2}$ took place in Goldenhuis Deep, Henry Nourse, Robinson, Stanhope, United Roodepoort, Wemmer, and Worcester. Durban-Roodepoort rose to 6 $\frac{1}{2}$ s., and May Consolidated to 3s.-6d. Dealers were very busy with Land shares. Oceana and Con-

solidated Gold Fields were firm, but Chartered oscillated widely between 3s. 6d. and 40s. Diamonds were rather off colour. Jagers, fell $\frac{1}{2}$ to 17 $\frac{1}{2}$ s., while De Beers were $\frac{1}{2}$ lower at 18 $\frac{1}{2}$ s. Business was resumed on a large scale in the South African Market on Tuesday. Jubilee fell $\frac{1}{2}$ to 7 $\frac{1}{2}$ s., and Orion lost $\frac{1}{2}$ to 4 $\frac{1}{2}$ s. In Heriot the reaction amounted to $\frac{1}{2}$ at 7 $\frac{1}{2}$ s., and City and Suburban relapsed $\frac{1}{2}$ to 15s. Crown Reef were $\frac{1}{2}$ down to 9s., and New Primrose also dropped $\frac{1}{2}$ to 5 $\frac{1}{2}$ s. Salisbury at 3 $\frac{1}{2}$ s., Goldenhuis Deep at 5 $\frac{1}{2}$ s., Henry Nourse at 4 $\frac{1}{2}$ s., Knight at 2 $\frac{1}{2}$ s., and Langlaagte at 4 $\frac{1}{2}$ s., each being about $\frac{1}{2}$ down. Simmer and Jack during the earlier dealings touched 9 $\frac{1}{2}$ s., leaving off in the Street at 9 $\frac{1}{2}$ s. bid, a rise of $\frac{1}{2}$. Nigel and Kimberley-Roodepoort each gained $\frac{1}{2}$, the former to 4 $\frac{1}{2}$ s. and the latter to 1 $\frac{1}{2}$ s. Ferreira were in demand at a rise of $\frac{1}{2}$ to 13s., and Meyer and Charlton at 6s. Village Main Reef at 4 $\frac{1}{2}$ s., and United Roodepoort at 4s. were better on the day, Nourse Deep being also firm. Losses of $\frac{1}{2}$ or $\frac{1}{2}$ occurred in many shares, including Consolidated Deep, Cresus, Goldenhuis, George Goch, Glencairn, Jumpers, Modderfontein, New Chimes, Robinson, Stanhope, Wemmer, and Worcester. Land and Diamond shares were rather off colour. The South African Market continued to be the centre of attraction during Wednesday. Several gold shares went down slightly, including Cities to 15s., Crowns to 9 $\frac{1}{2}$ s., Ferreira to 12 $\frac{1}{2}$ s., Goldenhuis Estate to 5 $\frac{1}{2}$ s., Henry Nourse to 4 $\frac{1}{2}$ s., Kleinfontein to 3s., Langlaagte Royal to 4 $\frac{1}{2}$ s., Salisbury to 3 $\frac{1}{2}$ s., Nigel to 4 $\frac{1}{2}$ s., Simmer to 9s., Wemmer to 5s., Wolhuter to 3 $\frac{1}{2}$ s., and Worcester to 3 $\frac{1}{2}$ s. Rand Mines were flat at 17s. Improvements, on the other hand, occurred in Jumpers, Chimes, Aurora, Consolidated Deep Levels, East Rand, Goldenhuis Main Reef, Heriot, Knight's Main Reef, Rietfontein and Village. Sutherland Reef were strong at 16s. Johannesburg Waterworks, which have had a smart rise, reacted 1s. Consolidated Gold Fields were also a shade better. Chartered were the most prominent feature in the Land section. The quotation hardened to 40s. and a few pence. Thursday was a day of unimpaired activity in the South African Market. Champ d'Or gained $\frac{1}{2}$, and rose to over 23s., while Cities recovered to 15 $\frac{1}{2}$ s. United Roodepoort went up $\frac{1}{2}$ to 4 $\frac{1}{2}$ s., while Salisbury closed at 3 $\frac{1}{2}$ s. Langlaagte Royals were harder, and small gains were registered in Aurora, West, Chimes, East Rand, Goldenhuis Estate and Main Reef, Gold Fields Deep, Rietfontein, and others. Afrikanders also hardened to 1 $\frac{1}{2}$ s., while Sutherland Reef, Sheba, United Pioneers, Guy Fawkes all improved. On the other hand, there were small relapses to record in Rand Mines, Crown Reef, Heriot, Jumpers, Orion, and Metropolitan. Chartered were not quite so active, and closed rather over £2. Orange Free State went up $\frac{1}{2}$, Zambesia $\frac{1}{2}$ s. Oceana Developments were better, but Explorations and Booysons were rather lower. Mozambique remained strong at 17s. 6d., and Consolidated Gold Fields were also maintained in their full strength. For diamonds there were no movements to chronicle.

Throughout to-day the South African Market has been firmness itself, Consolidated Gold Fields and Gold Fields Deep being exceptionally strong. At the finish, however, the markets are a little weaker, but still the look-out is highly favourable. Among the shares which have risen may be mentioned African Consolidated Lands and Klerksdorp, the former of which was quoted at 6s. 6d.

Risen: African Consolidated Land, 12s. 6d.; Afrikander, 11s. 3d.; Alexandra Estate, 6d.; Aurora, 2s. 6d.; Bantjes, 1s. 6d.; Buffelsdoorn, 1s.; Booyson, 5s.; Champ d'Or, 3s. 9d.; Consolidated Gold Fields, 8s. 9d.; Durban, 2s. 6d.; East Rand, 4s. 6d.; Ferreira, 5s.; Frank Johnson, 3s. 9s.; Goldenhuis Main, 1s.; George and May, 2s.; Gordon, 6d.; Gold Fields Deep, 16s. 3d.; Griqualand, 2s. 6d.; Harmony, 6d.; Johannesburg Investment, 1s. 3d.; Johannesburg Tramways, 1s.; Johannesburg Water, 2s. 6d.; Joe's Reef, 6d.; Kleinfontain, 8s. 9d.; Langlaagte Royal, 8s. 9d.; Mashonaland Agency, 2s.; Main Reef, 3s.; May, 1s. 3d.; Modderfontein, 25s.; Moodie's, 6d.; Mozambique, 6d.; New Belgium, 1s.; New Chimes, 6s. 3d.; New Transvaal Land, 1s. 6d.; Oceana Development, 3s. 3d.; Orange, 15s.; Potchefstroom, 6d.; Princess, 1s. 3d.; Rietfontein, 2s. 6d.; Roodepoort Kimberley, 2s.; South African General Trust, 3s. 9d.; South African Finance, 1s.; Sutherland Reef, 3s.; Transvaal Coal, 1s.; United Joy, 6s. 3d.; Van Ryn, 5s.; Knight's, 8s. 9c.—Fallen: Agnes Block, 1s. 6d.; Balkis Eersteling, 3d.; Balkis Land, 3d.; Barrett, 6d.; Bechuanaland, 1s. 6d.; Block B, 6d.; Consolidated Deep, 5s.; City and Suburban, 7s. 6d.; Crown, 5s.; De Beers, 5s.; Exploration, 2s. 6d.; Henry Nourse, 5s.; Heriot, 7s. 6d.; Jubilee, 17s. 6d.; Jumpers, 5s.; Langlaagte, 2s. 6d.; Lisbon, 6d.; Luipaards, 2s.; Meyer and Charlton, 5s.; New Cresus, 2s. 6d.; New Louis d'Or, 1s.; New Jagers, 2s. 6d.; New Primrose, 2s. 6d.; Oceana, 5s.; Oceana New, 2s. 6d.; Otto, 9d.; President Lands, 6d.; Randfontein, 1s.; Rand Mines, 15s.; Read's Drift, 2s. 6d.; Robinson, 2s. 6d.; Salisbury, 2s. 6d.; Sheba, 6d.; Southern Land (paid 15s.), 6d.; Simmer and Jack, 5s.; Stanhope, 3s. 9d.; Transvaal Exploration, 5s.; Transvaal Land (paid 15s.), 6d.; Wemmer, 5s.; Wolhuter, 2s. 6d.; Worcester, 5s.; Zambesia, 7s. 6d.

Miscellaneous Shares.

A fair amount of activity prevailed at the opening of the week in this market. Bayley's Reward gained 9d. to 17s. Wentworth Ordinary and Priority were freely bought, the former at 6s. 6d. and the latter at 10s. Hampton Lands and Hampton Plains eased off, but Broken Hill Proprietary improved 6d. to 41s. 6d. Elsewhere El Callao lost $\frac{1}{2}$ and Champion Reef $\frac{1}{2}$, smaller declines occurring in St. John del Rey at 27s. 6d., in Mysore West at 7s. 6d., and in Mysore-Wynaad at 6s. 6d. De Lamar hardened to 26s., and Mysore Gold Fields and Mysore Reefs went up 6d. Poorman, on the result of the meeting, recovered to 2s. 2d., Rio Tinto lost $\frac{1}{2}$ to 15. On Tuesday Hampton Lands at 3s. were $\frac{1}{2}$ down, Exploration receded $\frac{1}{2}$ to 1 $\frac{1}{2}$ s., West Australian Gold Fields $\frac{1}{2}$, to 3 $\frac{1}{2}$ s., and White Feather $\frac{1}{2}$ to 2 $\frac{1}{2}$ s. Bayley's Reward were easier and declined 6d. to 16s. 6d. In Miscellaneous descriptions Champion Reef advanced $\frac{1}{2}$ to 3 $\frac{1}{2}$ s., but Oregum, Balaghat, and the two Nine Reefs showed dullness at small losses. De Lamar and Montana also fell 3d. or 6d., Sierra Buttes on the other hand, gained $\frac{1}{2}$. Throughout Wednesday West Australians were rather dull, the undercurrent already noted being hardly so perceptible. White Feather, West Australian Gold Fields, and Hampton Plains were all somewhat easier. West Australian Gold Concessions closed $\frac{1}{2}$ worse at 1 $\frac{1}{2}$ s., West Australian Mining fell 1s. 6d. to 8s. 3d., and Bayley's Reward closed at 18s. 3d. Among Miscellaneous shares Broken Hill Proprietary were again easier, the last price of 40s. Harquahala dropped 1s. to 4s., but De Lamar remained steady, and Elkhorn gained 6d. to 12s. 6d. Mysore Gold Fields and South-East Mysore were each 6d. worse; other Indian shares remained stationary. On Thursday West Australians did not pick up much, small declines occurring in Gold Fields, Concessions, Mining, Hampton Lands, and Explorations. Hampton Plains, however, were strong and Bayley's hardened. In other directions a recovery took place in Broken Hill Proprietary, the shares closing at 41s. 6d. Oregum and Mysore West advanced $\frac{1}{2}$, and Balaghat, Harquahala, and Mysore Wynaad each gained a trifle. Rio Tinto lost a further $\frac{1}{2}$ to 14 $\frac{1}{2}$ s.

Things have been unusually quiet during to-day in the Miscellaneous Market, the only share showing any movement worth recording being Balkis Land, which were in demand.

West Australians have been very inactive—as, in fact, has been the case with them all the week.

Risen: Argentine Concession, 6d.; Brilliant 6d.; Broken Hill Proprietary, 6d.; Callao Bis, 9d.; Cape Copper, 1s. 3d.; Champion Reef, 1s. 3d.; Coromandel, 6d.; Day Dawn, 3d.; Day Dawn P.C., 9d.; De Lamar, 1s.; Elkhorn, 1s.; Frontino, 1s.; Idaho, 3d.; Mysore Reef, 1s.; Oregum, 2s. 6d.; Pestarena, 3d.; Poorman, 6d.; Rio Tinto, 2s. 6d.; Sierra Buttes, 1s.; Plumas Eureka, 1s. 3d.; Springdale, 3d.; Waihi, 6s. 3d.—Fallen: Aladdin's Lamp, 2s. 6d.; Baker's Creek, 1s. 3d.; Brilliant St. George, 1s.; Carrington, 3d.; Cravens, 3d.; Eaglehawk, 3d.; East Kootenay, 1s. 6d.; El Callao, 6s.; Golden Leaf, 9d.; Harquahala, 6d.; Jay Hawk, 1s.; Kaboonga, 3d.; Kapanga, 3d.; Macate, 3d.; Montana, 6d.; Mosman, 3d.; Mount Morgan, 1s. 3d.; Mysore Harnhalli, 3d.; Mysore Wynaad, 1s.; New Queen, 6d.; Nine Reefs, 3d.; Nine Reefs (fully paid), 3d.; Oregum pref. 2s. 6d.; Richmond, 1s. 3d.; Rio Tinto, 2s. 6d.; South East Mysore, 6d.; Victory, 6d.

Australian.

Risen: Bayley's, 6d.; West Australian Mining, 6d.—Fallen: Blackett's, 1s. 3d.; Golconda, 2s. 6d.; Hampton Lands, 2s. 6d.; Hampton Plains, 1s. 3d.; London and West Australian, 3s. 9d.; Mawson's, 1s. 3d.; West Australian Gold Fields, 2s. 6d.

STOCK EXCHANGE SETTLING DAYS.

Settling Days on the Stock Exchange are as follow:—

CONSOLS, Monday, December 3.

Continuation D. vs.	Ticket Days.	Pay Days.
Tuesday, Nov. 27	Wednesday, Nov. 28	Thursday, Nov. 29
Tuesday, Dec. 11	Wednesday, Dec. 12	Thursday, Dec. 13
Wednesday, Dec. 26	Thursday, Dec. 27	Friday, Dec. 28

THE EDITOR'S LETTER BOX.

* * We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

THE MINING CRISIS IN CORNWALL.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—In your issue of the 17th, under the head of "Mining in Cornwall and Devon," your special correspondent in the West states that in view of the long continued depression from which mining in the western counties has suffered, a highly important meeting of mine pursers and managers had been held in the Dolcoath account house last week, at which the absolute necessity of cutting down expenses to a minimum was recognised, and it was decided that a reduction of about 10 per cent. of the wages of the men must be made, if the mines were to be kept open during the present low price of tin.

There seems no question but that this reduction in the wages of the men is imperative under the circumstances of the crisis in the Cornish tin mining industry, but what surprises me and others is that so little attention has been paid by those interested in Cornish mining to what appears to be the cause of all the trouble at the root of the extraordinary low price of tin—viz., the depreciation in the value of silver brought about by the demonetisation of the white metal during the last 20 years since 1873. Some people may ask, "What has the price of silver got to do with the price of tin?" but it is obvious that it has everything to do with it.

The greatest tin producing country of the world is the Straits Settlements in the East, which has doubled its output since 1887, and trebled it since 1879. What has been the greatest incentive to this increased output of tin? Undoubtedly the fall in the sterling value of the silver dollar. The miner in the Straits Settlements practically receives no more dollars as wages now than he did in 1879, although the European or gold value of these dollars has fallen from 44d. to about 25d., therefore the mine proprietor in the Straits can raise his tin ever so much cheaper than he could do in the year 1879, and consequently can afford to sell his increased output of tin at a less price.

If it be assumed, as I understand is the case, that in the Straits tin costs about \$400 (silver basis) a ton, and can be landed in London at a good profit at about \$500 (silver basis) per ton, therefore, seeing that in 1879 the dollar was worth 44d., a ton of Straits tin then cost in London about £90 to £95, whereas now, since the dollar is worth but 25d., tin can be delivered at about £50 to £55 in London to produce the same return. Consequently the present price of about £68 a ton gives an excellent return to the Straits producer of tin, although at the same time this same price is starving Cornish mining to death.

Surely there is enough public spirit in Cornwall to take up the silver question before the tin mining industry of the county becomes a thing of the past.

It may be urged by some that already "bi-metallism," which is only another word for "international reciprocity in currency," is making steady progress in England, and that its adoption is only a matter of time, but it may take some years yet before the "mono-metallic idol" is shattered to pieces; and in the meantime who can predict whether Cornish mining, in common with so many industries in Great Britain, as well as the agricultural interest, will not go under by reason of the terrible fall in wholesale prices, consequent on

are at least 18 columns devoted to foreign mining news and no less, besides your leading article on "Gold Mines."

All the Cornish mining reports occupy 3 inches of space, consisting of a very short report of Wheal Kitty, and equally so of South Condurrow, and unless yourself in your weekly notes mention Cornish mining—and the *Western Morning News*—no person outside of the districts where our mines exist would know that there were any Cornish mines at all.

Now we hear that outside capital does not come into Cornwall. Our mining is not amongst that same industry all over the world. Can we wonder at this when so much indifference exists as to the publications of our proceedings in Cornish mining operations? If we want outside capital to come into Cornish mining, we should keep before the public what is being done in them, equally so as gold and other foreign mines are.

These gold mines send weekly or monthly reports to your own valuable Journal, and to other London papers, giving details of work done, or of gold milled, value and cost of production. How can the executive of these great mines furnish so much detailed particulars to your Journal, when we never see the name of many of our Cornish mines, and no one out of the county would know they ever had an existence?

Is it not time, Mr. Editor, that the Cornish mines should again fill columns of your Journal with their state, prospects, returns, cost, and other information, as is furnished from the mines in every part of the world but Cornwall? No doubt this letter expresses a general wish amongst

SHAREHOLDERS.

November 19th, 1894.

[We are doubtful whether the writer complains of our indifference or of that of the secretaries and managers of the Cornish companies. If the former, it is the first time such a complaint has been made. On the contrary, nearly all our readers marvel at our consistency in "whipping a dead horse." We are afraid that a paper full of "prospects" will not cure the evil which is so deeply rooted. In this connection we commend for serious perusal the very sensible letter of "E. S. H."—ED.

M. J.]

LECTURE ON EXPLOSIVES

Delivered by Mr. W. J. Orsman, Analytical Chemist of the "Roburite" Explosives Company, and the recent Experiments at Messrs. Pearson and Knowles' Coal and Iron Company (Limited), Inc.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR.—Kindly permit me space in your valuable paper to reply to the lecture on explosives lately delivered by Mr. W. J. Orsman, analytical chemist to the "Roburite" Explosive Company, in the Mining School, Wigan, which had reference to the recent experiments at Inc., particularly with regard to Westphalite.

The Chairman on that occasion, Mr. J. House, after enlightening his hearers on the general subject of explosives, referring to "Roburite," acknowledged the fact that this explosive when fired into an apparatus containing an inflammable mixture of gas and air without any tamping always produces an explosion of such atmosphere. That a vast number of untamped shots are daily fired in our coal mines is only too apparent. As illustrating the danger to which miners and mineowners are exposed when using explosives, which will in an untamped state ignite and explode inflammable mixtures of gas and air or coal dust, I beg to draw the attention of your readers to the following abstract from a circular of Mr. Henry Hall, Her Majesty's Inspector of Mines, dated August 24th, 1894:

"I desire also to inform you that it has come to my knowledge that in some few mines in the district safety explosives are used without any proper tamping, in some cases the explosives being inserted into breaks and fissures in the strata, in others being placed loose on large stones to break them up. I need not remind you that such practices are extremely dangerous, and any explosive used in this manner is no longer a safety explosive."

The firing of untamped shots arises also from a variety of other causes and occurs daily. For instance, it happens that tamping is accidentally omitted, or a shot may have been properly stemmed, and is blown out through fissures leading from the bore-hole; in the latter case the effect produced is tantamount to an untamped shot. Insufficient tamping will cause blown out shots, and although most of the explosives of the Boburite class will reduce the consequent danger of such blown out shots igniting inflammable mixtures of gas and air or coal-dust; yet they will not absolutely prevent it. It was never intended for a moment to fire Westphalite for coal blasting in a naked state; for without tamping no blasting results could be obtained; but having regard to the frequent occurrences of untamped shots and blown-out shots, as already explained, all experiments for testing the safety of explosives in the presence of inflammable mixtures of gas and air or coal-dust should be made with untamped shots only.

As to Mr. Orsman's criticism of "Westphalite," permit me to point out that he entirely misrepresented the qualities of this explosive. At the time when he delivered his attack on Westphalite (the 3rd of November) he could not have known much about it, for on October 29th, the secretary of his company (the Roburite Explosives Company) wrote to the Westphalite Syndicate (Limited) for a sample case of Westphalite for experimental purposes, but they did not send it.

Mr. Orsman states that Westphalite is extremely sensitive to moisture. It may interest your readers to know that this very Westphalite which has been experimented upon was manufactured in Westphalia in June last. It was shipped to Hamburg in July, and arrived in the magazines in England in the early part of August, and since that date not an ounce of Westphalite has arrived on the shores of the United Kingdom—a fact which anybody can ascertain by applying at the Home Office. On November 8, Mr. John Knowles (Messrs. Pearson and Knowles) and four gentlemen representing the Duke of Bridgewater Collieries, and four of Messrs. Pearson and Knowles' managers, found the explosive was then in excellent condition and as dry as dust. So much for Mr. Orsman's mis-statement.

Mr. Orsman's opinion that a No. 8 detonator would only partially explode Westphalite, the rest being scattered about, is quite incorrect. In order to prove the contrary of this assertion I must refer your readers to the result of the official tests of October 24, when at the conclusion of them Messrs. D. H. F. Matthews (Her Majesty's Inspector of Mines), J. Burrows (Messrs. Fletcher, Burrows, and Co.), and Robert Isherwood, J.P. (miners' agent), reported on the balistic or propulsive tests as follows:—Shots fired from the cannon, 35 lbs. projectile, No. 6 detonator in all cases; 10 grammes of each explosive.

Boburite 182 yards.

Westphalite 177 "

Bellite 171 "

Ammonite 163 "

Tonite 111 "

Carbonite 77 "

Ardeer powder 61 "

If only a portion of the Westphalite had exploded, as Mr. Orsman suggests, when fired with a No. 6 detonator, the shot would not have traversed half the distance. It would have been most unfair to the other explosives had a more powerful detonator been employed with Westphalite. The above fur-

nishes another proof of Mr. Orsman's complete failure to substantiate his opinion, whilst it affords conclusive evidence that a No. 6 detonator will completely detonate and explode Westphalite.

As to Mr. J. House's challenge whether I would submit Westphalite to the test with No. 7 or No. 8 detonator in an untamped state in an explosive atmosphere—my answer is—"Yes, most decidedly up to and including a No. 10 detonator."

At my request Mr. John Knowles kindly experimented on November 1 with the following results:—

(a) Two detonators, No. 10 and No. 6½ respectively, in all containing 4½ grammes of fulminates of mercury, placed inside one charge of 15 ounces of Westphalite, and fired into suspended Arley Mine coal dust. Result:—No ignition nor explosion of coal dust, and no flame seen. (b) One detonator, No. 10, placed inside 15 ounces of Westphalite fired into suspended Arley coal dust. Result:—No ignition nor explosion of coal dust, no flame seen. (c) One detonator, No. 10, inside 11½ ounces of Westphalite, fired into suspended Arley coal dust. Result:—No ignition nor explosion of coal dust, no flame seen. (d) One detonator, No. 10, inside 11½ ounces of Westphalite, fired into a mixture consisting of 5 per cent. of gas and suspended Arley coal dust. Result:—No ignition nor explosion of the inflammable mixture, and no flame seen.

On November 8 Mr. John Knowles conducted further experiments with Westphalite in the presence of four gentlemen, representing the Duke of Bridgewater's Collieries, and four of Messrs. Pearson and Knowles' managers, with the following results:—

(a) One detonator No. 10 inside 16 ounces of Westphalite, and fired into suspended Arley coal dust. Result: No ignition nor explosion of coal dust, and no flame seen.

(b) One detonator No. 10 inside 16 ounces of Westphalite and fired into 5 per cent. of gas and suspended Arley coal dust. Result: No ignition nor explosion of inflammable mixture, no flame seen.

On the 13th November, Mr. Knowles experimented at my request with Westphalite in a dangerous mixture of 10 per cent. of gas and suspended Arley mine coal dust, using a No. 10 detonator.

Three Westphalite shots were fired weighing respectively 7½ ounces, 10 ounces, and 13½ ounces. Result: No ignition nor explosion of gas and dust, and no flame seen.

Afterwards a Roburite shot was fired into a similar mixture of 10 per cent. of gas and Arley mine coal dust with a No. 6½ detonator.

The result was a terrific explosion of gas and coal dust, and an enormous flame measuring 45 to 50 feet.

These tests clearly demonstrate and prove that Westphalite can be safely used with either No. 6, 7, 8, 9, or 10 detonators as circumstances may require.

But as Roburite and all its kindred explosives have failed to satisfy the safety tests to which Westphalite has been subjected under far less favourable conditions, I must claim for the latter explosive the first and foremost position up to the present time as the safest of all explosives for blasting in coal mines.

In conclusion, I wish to state that since October 30th, a series of experiments with Westphalite have also been conducted by Mr. John Knowles in the Wigan Six-feet Mine, in the presence of Messrs. Pearson and Knowles' managers, and upon one occasion in the presence of four gentlemen representing the Bridgewater Collieries, the results being highly satisfactory for getting good lump coal.

Apologising for trespassing so much on your valuable space, and thanking you in anticipation for inserting this, I remain, Sir, yours faithfully,

JOHN HIGSON.

Mem. Inst. Civil Engineers.

18, Booth-street, Manchester, November 14th, 1894.

THE BUYING OF SOUTH AFRICAN SHARES.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR.—Permit me to offer a word of advice and warning to your readers in regard to the purchase of South African gold mining shares.

The temptation to buy high-priced shares is great, when they are rising, like Modderfontein, New Heriot, and others; but it is very risky to do so after such a rise, especially as a speculation. To those who can take their shares off the market, receive their dividends, and wait, the case is different, if continuous returns are assured. For those who cannot wait, if the market goes against them, the wisest plan is to study the position and prospects of the more moderate-priced ventures. There is no question that large profits can be made in South African shares, but it is necessary carefully to consider these points, and to avoid recklessness buying.—Yours, &c.,

INVESTOR.

MINING INDUSTRY IN AUSTRIA.—The iron and coal industries in Austria appear to be looking up to a marked extent recently, a fact which has a two-fold cause, the German competition having subsided, and several new important railways having been decided upon; in addition, a great deal of building is going on. The building of the Vienna city railway has already been taken in hand, and this is to be supplemented by several auxiliary electric railways, both under and over ground. Of still greater importance for the iron industry are the many local railways, the building of which has been greatly advanced since Count Wormbrand became Minister of Commerce. Under the present Railway Act already 16 railway lines have been decided upon and guaranteed, their aggregate mileage being over 350 miles, and the calculated cost being over £3,000,000. A new Bill for local railways will be introduced this autumn, and is expected to further tend to the development of private railway lines, the more so as the Government is determined to support the movement in various ways. The position of the iron industry has also been improved through the part renewal and reconstruction of the union between the Austrian and Hungarian ironmasters. This arrangement has made it possible to raise the quotations, and a co-operation with the ironmasters of Upper Silesia is under contemplation. Also in Hungary the Government is paying much attention to the advancement of local railway construction.—*Engineer and Iron Trades' Advertiser.*

Mr. Orsman's opinion that a No. 8 detonator would only partially explode Westphalite, the rest being scattered about, is quite incorrect. In order to prove the contrary of this assertion I must refer your readers to the result of the official tests of October 24, when at the conclusion of them Messrs. D. H. F. Matthews (Her Majesty's Inspector of Mines), J. Burrows (Messrs. Fletcher, Burrows, and Co.), and Robert Isherwood, J.P. (miners' agent), reported on the balistic or propulsive tests as follows:—Shots fired from the cannon, 35 lbs. projectile, No. 6 detonator in all cases; 10 grammes of each explosive.

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THE METAL MARKETS.

LONDON METAL MARKET.

THE METAL MARKET, LONDON, NOVEMBER 28.

Copper.

THE speculative market opened firm on Monday at £40 s.c., and improved to £40 2s. 6d. without any special feature turning up. Three months' G.M.B.'s were done at £40 7s. 6d., and the total turn-over for the day was about 350 tons. On Tuesday three months' copper opened at £40 7s. 6d., but the tone gradually flattened, and we had a decline to £40 6s. 3d. the same day, and to £39 18s. 9d. on Wednesday, whilst cash G.M.B.'s finally touched £39 11s. 3d. The transactions for the two days amounted to about 1250 tons, and the decline was due chiefly to pressure of sales. On Thursday the market was rather steadier, and spot recovered to £39 15s., whilst three months rose to £40 3s. 9d. To-day the market has been strong and advancing, and it closes firm at £40 2s. 6d. to £40 3s. 9d. s.c., and £40 8s. 9d. to £40 10s. three months. In the earlier part of the week certain dealers made a great effort to knock the market down, and this frightened some holders into selling, no doubt with the intention of covering it again at lower prices. These efforts account for the decline referred to above, but the market changed suddenly on good buying, no doubt induced by the advices from America respecting a large reduction in output agreed upon amongst producers, and we close with a much better market, with values at 11s. 3d. per ton above the worst of the week, and even 2s. 6d. above last week's close. The advices from America say that the largest producers are out of the market as they are sanguine that some arrangement will be come to as to export.

The chief feature this week has been the rapid depression of values through rather heavy speculative sales. On Monday about 200 tons changed hands at £65 15s. to £65 10s., both s.c. and three months Straits. On Tuesday the turn-over was about 450 tons, and the fall was from £65 10s. to £64 10s. three months being done later in the day as low as £64 5s. Wednesday was a quiet day, with 220 tons treated, and prices steady at £64 7s. 6d. to £64 2s. 6d. s.c., and £64 12s. 6d. to £64 7s. 6d. three months. Thursday, however, brought a further sharp drop, cash tin opening nearly £1 lower at £63 5s., and three months at £63 10s. and £63 7s. 6d. The purchases made by a speculator late in the day brought about a recovery of 10s., whilst the turn-over amounted to 480 tons. To-day's business was again at better rates, £64 s.c. being paid, and we close steady at £64 to £64 2s. 6d. s.c. and £64 2s. 6d. to £64 5s. three months. In the Dutch market Billiton tin opened at 39½ fl. s.c. and three months, and, following the course of our market, touched successively 39¾ fl., 39½ fl., and 38½ fl., closing to-day at 38½ fl., with Banks at 39 fl.

Pig Iron.

Scotch shipments last week were 7712 tons, or 2106 tons more than in the same period of 1893. The Glasgow market opened steady at 42s. 6d. s.c., at which a small business was done on Monday. Tuesday was quiet at 42s. 6d. and 42s. 6d., and on Wednesday the value receded to 42s. 5d., at which the market remained steady on Thursday. To-day, after business at 42s. 5d. and 42s. 4d., it closed at 42s. 5d., buyers, with hematite at 43s. 2d., and Cleveland at 35s. 4d.

Lead.

Lead, and values have declined to the extent of half a crown, the close being at £9 12s. 6d. sellers of soft foreign, and £9 15s. to £9 17s. 6d. English. Spelter

is firmer, with a fairish consumptive demand at £14 10s. buyers of ordinaries, and £14 10s. to £14 12s. 6d. specials.

Antimony

continues steady at £33 to £34.

Quicksilver.

First hands still hold for £6 15s., but seconds are now obtainable at £6 8s., at which a considerable quantity has changed hands.

The following are to-night's (November 23) prices of metals:—

	Copper.	Alloys.
Tough cake and ingot	42 s. d.	8 s. d.
Best selected	42 5 0	43 5 8
Sheets and sheathing	—	51 0 0
Flat bottoms	—	54 0 0
Chili bars	40 2 8	40 8 8
Good merchantable, spot, & 3 months respectively	40 2 8	40 8 8
Copper tubes, seamless	—	0 0 7 7
BRASS: Wire	0 0 5%	
" Tubes (solid drawn)	—	0 0 5%
" Sheets	—	0 0 5%
PHOSPHOR BRONZE: Alloys II.	75	81
" III. or V	75	81
" VII.	75	81
" XI.	75	81
" Vulcan brand AI	75	81

"THE MINING JOURNAL" SHARE LIST.

NOTATIONS AND REFERENCES.—The following are the significations of the abbreviations and references which occur in the Share List:—*A*, Antimony; *B*, Arsenic; *Bz*, Borneo; *C*, Copper; *D*, Diamond; *G*, Gold; *I*, Iron; *J*, Lead; *M*, Manganese; *N*, Nitrates; *P*, Phosphates; *Q*, Quicksilver; *R*, Ruby; *S*, Silver; *S-L*, Silver-lead; *Sul*, Sulphur; *T*, Tin; and *Z*, Zinc. "In the 'called up' column of British Mines, signifies that the mine is conducted on subject to the Limited Liability Law of the South African Republic. In the "Head Office" column of African Mines, signifies that the address given is not that of the head office, but of a sub- or transfer office and †, following the names of African mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and the Secretaries of Companies, Share dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

BRITISH MINES.

Name.	Closing Price, Nov. 23, 1894	Closing Price, Nov. 18, 1894	Par.	Latest Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Blue HillsCT	2/5 5/-	2/5	£ s.	2/- May, '94	£ s. 5/-	5,353	Cornwall	Camborne.
BotallackT	1 1/2	1	1	—	51 4/-	1,880	Cornwall	St. Just.
Carn Bras.T	5 5/4	5/4	1	2/6 Dec., '93	21 18 5	6,000	Cornwall	Carn Bras.
Cook's KitchenT	1/2 3/-	2/6	1	—	35 15 1/	4,900	Cornwall	Camborne.
Devon Gwntow C.A	par 1/2 pm.	p. 1/2 pm.	1 0	—	0 7 6	25,000	Near Tavistock	8, Finsbury circus.
Devon Gt Cons.C.A	1/4 1/2	1/2	5 0	3/- May, '94	2 0 0	10,240	Levton	8, Finsbury circus.
DulcoathT	50 52	50	1	12/6 Apr., '94	9 12 6	4,700	Cornwall	Camborne.
Drakewalls CTM	-/3 -/8	-/3	0 5	—	0 2 0	6,856	—	Dashwood House.
East PoolAT	4 4 1/2	5	1	1/6 Sept., '94	0 9 9	6,40	Cornwall	Illogan.
GawtonCA	—	—	2 10	—	2 7 3	12,000	Devon	20, Great St. Helens.
Great LaxeyL	1 1/2 2	1 1/2	4 0	5/- Apr., '94	4 0 0	15,000	Isle of Man	Douglas, Isle of Man.
Green HurthL	1/6	1/6	1 0	-/6 June, '94	0 19 0	32,411	—	Can berland.
HalkynL	—	—	1 0	2/- Sept., '94	1 0 0	10,000	Flintshire	Chester.
HexworthyT	—	—	1 0	—	1 0 0	Devon	6, Queen-street-place.	
Isle of ManL	—	—	5 0	2 1/2 p.c. Sep., '94	5 0 0	14,070	Isle of Man	Chester.
KillifirthT	2 2 1/2	2	—	1/6 Nov., '94	5 11 8	6,000	Cornwall	Turro.
LeadhillL	15/- 30/-	15/-	6 0	3/- Sep., '94	5 0 0	20,000	Leicestershire	30, Finsbury-circus.
LevantCT	—	—	4/- Nov., '94	—	2,500	Cornwall	Penzance.	
LowellT	—	—	—	1/3 Nov., '94	1 16 7	7,165	—	3, Gt. Quen.-st., S.W.
MinersT	—	—	5 0	5/8 Mar., '94	5 0 0	9,000	Denbighshire	Minera, N. Wales.
Northda Inde.L	1/8	1/8	1 0	6 2/ Feby., '94	0 18 0	48,875	Northumberland	Newcastle-on-Tyne.
NewCoats Ktn.TC	—	—	—	10 18 3	4,900	Cornwall	Camborne.	
New MinersT	—	—	1 0	1/— Oct., '92	1 0 0	30,000	North Wales	8, Queen-street-place.
ParoLZ	—	—	1 0	—	1 0 0	—	Blitheroe, E.C.	Llanrwst.
Phoenix United C.A	1/7 3/-	1/-	—	1/— Mar., '90	7 4 6	10,665	Cornwall	37, Walbrook.
PolberroT	17/6 22/6	20/-	—	3 7 9	18,000	Cornwall	20, Great St. Helens.	
So. Condarrow TC	2/8 5/-	2/6	—	3/8 Apr., '93	7 12 1	6,123	Pool, Cornwall.	Pool, Cornwall.
South Crofty Td.	2/6 7/6	5/-	—	—	17 7 6	6,120	Cornwall	Redruth.
S. Frances Untd.T	2/6 7/6	5/-	—	—	2 7 8	6,000	Cornwall	Carr. Bras.
TimcroftT	7/6 8 1/2	7 1/2	—	—	15 7 8	6,000	Cornwall	3, Lombard-court.
WeardaleL	9/-	9/-	4 0	1/3 Oct., '90	1 10 0	50,000	Durham	Wearhead.
West FrancesT	2/6 7/6	2/6	—	2/6 May, '99	16 4 7	6,144	Cornwall	Camborne.
West KittyT	5 5 1/2	5	—	3/— Aug., '94	1 2 0	6,000	Cornwall	37, Walbrook.
Wheel AgarTA	2/6 7/8	2/6	—	2/6 Aug., '98	23 5 2	6,000	Cornwall	Redruth.
Wheel BassesTC	10/- 15/-	10/-	—	10/- Apr., '88	12 3 0	6,144	Cornwall	7, Union-court, E.C.
Wheel FriendlyT	6 1/2	1/2	—	—	0 12 9	10,000	Cornwall	110, Cannon-st., E.C.
Wheel Grenville T	13 14	13	—	2/6 Nov., '94	18 2 0	6,000	Cornwall	7, Union-court, E.C.
Wheel KittyT	2/6 4/-	2/6	—	3/- Mar., '88	4 5 6	6,890	Cornwall	Truro.
Wheel Metal & F.T	5 6 3/4	3/4	—	—	0 13 9	10,784	Cornwall	14, Broad-street Av.

AUSTRALIAN AND NEW ZEALAND MINES.

Name.	1/2 dis par	1/2 dis.	1 0	—	0 7 6	100,000	Murchison ...	17, Old Broad st.
AbbottsG	1/2 dis par	1/2 dis.	1 0	—	1 0 0	80,307	New Zealand ...	3, Church Pas., E.C.
Achilles Gld Fid.	2/5 3/8	2/6	1 0	—	1 0 0	100,000	N. S. Wales ...	4-8, Throg. Avenue.
Aladdin Lamp G	1 1/2 1 1/2	1 1/2	1 0	1/— Apr., '94	1 0 0	75,000	Queensland ...	5, Throg. Avenue.
Amans. W. (nt.) G	—	—	1 0	—	1 0 0	51,000	W. Australia ...	6, Lombard-court.
Anglo-....G	par. 3/4 pm.	p. 3/4 pm.	1 0	—	0 12 6	50,000	23, Collegehill, E.C.	23, Collegehill, E.C.
AustinG	3/4 3/3	2/9	1 0	-/8 Mar., '92	1 0 0	210,000	Queensland ...	6, Queen-st., place.
AustralianC	—	—	20	1/6 Nov., '94	7 7 8	18,315	S. Australia ...	8, Old Jewry Chbrs
Aus. Bro. Hill Cons.	1/6 2/-	1/6	1 0	1/— June, '91	1 0 0	537,138	Winchester House,	Winchester House.
Baker's CreekG	1/4 1/4	1/4	1 0	1/— Sept., '94	0 17 6	112,000	N. S. Wales ...	Hilgrove, N. S. Wales
Bayley's Reward G	17/6 17/6	17/6	1 0	-/9 Nov., '94	1 0 0	480,000	W. Australia ...	2, Met. Ex. Buildings
Big BlowG	25/6 11/6	11/6	1 0	—	—	120,000	W. Australia ...	6, Lombard Ho., E.C.
Blackett's Chasm G	15/6 17/6	16/3	1 0	—	1 0 0	60,000	W. Australia ...	4, Shepherds-in, E.C.
Blue Spur & G. G.	8/- 1/2	1/2	1 0	—	1 0 0	80,098	New Zealand ...	3, Gt. St. Helens.
Bonnie Dundas G	4/- 4/6	4/-	—	—	0 18 6	120,000	Queensland ...	3-5, Gracechurch-st.
BrilliantG	16/6 17/6	17/6	2 0	-/3 Nov., '94	2 0 0	250,000	Queensland ...	7, Gracechurch-st.
Brilliant BlockG	15/6 19/6	19/6	2 0	-/6 Nov., '94	2 0 0	75,000	Queensland ...	7, Gracechurch-st.
Brilliant, St. Geo. G	2/6 27/	26/2	1 0	6d. Nov., '94	5 0 0	240,000	Queensland ...	3-5, Gracechurch-st.
Brit. Brook. Hill S	3/- 4/-	2/6	2 0	1/— Dec., '94	0 8 0	960,000	N. S. Wales ...	14, Hillst., Edinboro'
Broker. Hill Prop. Brkn. Hill Pl. Bl.10	—	—	10 0	1/— Feb., '94	9 13 0	10,000	N. S. Wales ...	14, Hillst., Edinboro'
Brkn. Hill Pl. Bl.10	—	—	5 0	—	1 0 0	10,000	N. S. Wales ...	14, Hillst., Edinboro'
CarringtonG	2/3 2/9	2/6	1 0	—	0 12 6	100,000	N. S. Wales ...	14, Hillst., Edinboro'
Con. G. M. of W. A.	par 1/2 pm.	p. 1/2 pm.	1 0	-/7 Mar., '92	1 0 0	80,000	New Zealand ...	14, Hillst., Edinboro'
CoolgardeG	10/- 13%	10/-	—	1/6 Nov., '94	7 7 8	40,000	W. Australia ...	14, Hillst., Edinboro'
Craven's Cal.G	2/3 3/-	2/9	0 0	-/3 June, '94	0 4 8	100,000	Queensland ...	14, Hillst., Edinboro'
Croydon King B. G.	3/5 5/-	3/-	0 0	—	0 12 6	100,000	N. S. Wales ...	14, Hillst., Edinboro'
Cumbri. New(G)G	7/9 1/3	1/3	0 0	2/6 Dec., '97	1 0 0	184,290	N. S. Wales ...	14, Hillst., Edinboro'
Day Dawn B. & W.G.	7/9 8/3	7/6	1 0	-/6 Mar., '93	1 0 0	498,400	Queensland ...	14, Hillst., Edinboro'
Day Dawn P. C. G.	6/6 7/7	5/9	1 0	-/6 Mar., '93	1 0 0	490,000	Queensland ...	14, Hillst., Edinboro'
EaglehawkG	1/2 1/8	1/3	1 0	-/8 Apr., '92	0 19 6	120,000	Queensland ...	14, Hillst., Edinboro'
Empress Coolge. G	5/6 5%	5%	1 0	—	0 1 0	90,000	W. Australia ...	14, Hillst., Edinboro'
Eng. & Aus. Cop. C.	5/6	5/6	2 0	2% 1883	1 17 6	70,000	W. Australia ...	14, Hillst., Edinboro'
EtheridgeG	1/12 1/12							

"THE MINING JOURNAL" SHARE LIST—(Continued).

SOUTH AND CENTRAL AMERICAN MINES—(Continued).

Name.	Closing Price, Nov. 23, 1894	Closing Price, Nov. 16, 1894.	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Santa Barbara ...G	—	—	G 10	1/3 Dec. '88	G 10	80,000	Brazil	Liverpool
Santa Elena ...N	7% 1%	7%	5 0	5/— Oct. '94	5 0	22,000	Tarapaca	3. Gracechurch-st.
Santa Rita ...N	3% 4%	3%	5 0	15% Apr. '94	5 0	20,000	Dashwood House, E.C.	Chill
San Sebastian ...N	2% 2%	2%	5 0	1/6 May '94	5 0	29,000	Dashwood House, E.C.	Chill
Segovia ...G	—	—	5 0	—	5 0	160,000	5. Cophatl-building:	Colombia
Sierra Pref...G	—	—	1 0	10% July '94	1 0	840	Colombia	23. St. Swithin's In.
Sucre Ord...G	—	—	1 0	8% July '94	1 0	10,000	Colombia	23. St. Swithin's In.
Tetuan ...G	—	—	1 0	—	0 19 6	200,000	5. Cophatl-buildings	Colombia
Tolima "A" ...S	8% 9	8%	5 0	10% Aug. '94	5 0	14,000	18. Finsbury-circus.	Colombia
Do. "B" ...S	7% 8	7%	5 0	10% Aug. '94	5 0	6,000	18. Finsbury-circus.	Colombia
Vic. & Altamira ...	1/- 1/3	1/-	0 5	—	0 5 0	200,000	Broad-st. Avenue.	Venezuela
West Indian...G	—	—	0 5	—	0 5 0	700,000	49. Queen Victoria-st.	San Domingo
Zaruma ...G	—	—	0 5	—	0 5 0	261,422	1. Gt. Winchester-st.	Ecuador

AFRICAN MINES—(Continued).

Name.	Closing Price, Nov. 23, 1894	Closing Price, Nov. 16, 1894.	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Langlaagte Est. G	4	4%	4%	3 0	2/- Oct. '94	1 0	467,000	Witwatersrd.
Do. Royal	4 1/2	4 1/2	3 1/2	1 0	5% Sept. '93	1 0	100,000	Witwatersrd.
London & S. A. Ex.	1/9	2/3	2/6	—	—	3 2 6	883,233	Lydenburg ..
Luipaards Vlei Est.	14/- 15/-	16/-	1 0	6% Mar. '90	1 0	100,000	Witwatersrd.	
Do. do. do.	1/4	1/4	1/4	—	—	0 10 0	25,000	Witwatersrd.
Main Reef (New) G	13/8	14/8	10/8	1 0	—	0 10 0	300,000	Witwatersrd.
My Cou. (New) G	11/16	13/4	1 0	—	—	1 0	430,000	Witwatersrd.
Mahon. Agency...	13/4	13/4	1 0	—	—	1 0	100,000	Mashonaland
Mahon. Central...	—	—	—	—	—	1 0	200,000	Mashonaland
Matabeleland	—	—	—	—	—	0 12 6	73,889	Matabeleland
Metropolitan (N) G	13%	15%	13%	1 0	—	1 0	75,000	Witwatersrd.
Meyer & Charl...G	6% 6%	5%	1 0	25% June '94	1 0	71,687	Witwatersrd.	
Moffodenfountain. G	6% 6%	5%	1 0	—	—	1 0	200,000	So. Africa
Montrose ...G	5%	5%	5 0	3/- Feb. '90	1 0	70,000	De Kaap	
Moodies G.E. & G.	10/ 11	9/8	1 0	—	—	1 0	240,000	De Kaap
Mozambique....G	17/6	18/6	17/-	1 0	—	1 0	400,000	S. E. Africa
Namaqua ...C	16/3	18/9	2 0	2/6 July '91	2 0	194,351	Namaqualand	
New Aurora West G	13/6	14/6	8/6	1 0	5% Mar. '93	1 0	30,000	Witwatersrd.
New Black Reef ...	1/- 2/-	1/-	1 0	—	—	1 0	75,000	Witwatersrd.
New Chimes ...G	2 1/2	2 1/2	1 0	5% Oct. '94	1 0	72,000	Witwatersrd.	
New Clever Estate	11/16	13/4	1 0	—	—	1 0	100,000	Lydenburg ..
New Croesus ...G	13%	13%	1 0	5% Aug. '92	1 0	195,000	Landwagte ..	
New Edwin Bray	3/4	3/4	7 0	—	—	1 0	65,200	De Kaap
New Gordon ...D	3/6	4/6	3/-	—	—	1 0	560,250	Grifualand ..
New Heriot ...G	7 1/2	7 1/2	1 0	20 p.c. Sept. '94	1 0	195,000	Witwatersrd.	
New Jagers ...D	16 1/2	17 1/2	10 0	10 0	10 0	10 0	100,000	Transvaal
New Klerksdorp ...D	2 9/3	2 9/3	2 9/	1 0	—	1 0	80,000	Transvaal
New Louis D'Or ...G	6/- 6/-	7/-	1 0	—	—	1 0	100,000	Transvaal
New Primrose ...G	5 1/2	5 1/2	5 1/2	1 0	20% July '94	1 0	230,000	Witwatersrd.
New Rietfontein ...G	3 1/4	4/4	3 0	—	—	1 0	100,000	Witwatersrd.
New Salary ...G	3/4	3/4	7 0	—	—	1 0	234,583	Grifualand W
New Spee Bona ...G	17/8	18/8	17/5	1 0	—	1 0	93,000	Witwatersrd.
New Spes Bona ...G	1 1/2	2/-	1 0	—	—	1 0	113,801	Transvaal
New Opin Concess ...G	3/2	4/3	3/2	1 0	—	1 0	111,857	E. Coast-Africa
New Virginia ...G	10/ 11	9/8	1 0	—	—	1 0	48,335	Transvaal
Nigel ...G	4 1/2	4 1/2	3 0	15% Sept. '94	1 0	160,000	Witwatersrd.	
Nooitgedacht E. G	—	—	1 0	—	—	1 0	160,000	Lydenburg ..
OceanaC	15/16	2 1/4	2 1/4	1 0	25/- Nov. '89	1 0	150,000	Transvaal
Oceana Developmt	5 1/2	5 1/2	5 1/2	1 0	—	1 0	50,000	Transvaal
Orange F.S.E. ...D	4 1/2	3 1/2	1 0	1/- Sept. '94	1 0	284,000	Orange F. State	
Orion ...G	4 1/2	2 1/2	1 0	10% Nov. '94	1 0	36,000	Witwatersrd.	
Otto's Kopje ...D	3/2	3/2	4/-	1 0	—	1 0	437,883	Kimberley ..
Paarl Central ...G	24/-	25/-	24/-	1 0	—	1 0	138,750	Transvaal
Pant Ophir ...G	—	—	—	1 0	10 p.c. Aug. '94	1 0	12,000	Tweefontein
Pardy's Mozambiq...	—	—	—	2 10	10 p.c. Apr. '94	0 10 0	13,000	S. E. Africa
Pigga Peak, New G	8/6	1	1 0	—	—	0 17 0	230,326	Swaziland ..
Potchefstroom ...G	5/6	6/6	1 0	—	—	1 0	161,000	Potchefstroom
Princess Estate G	1 1/2	1 1/2	1 0	—	—	1 0	72,046	Witwatersrd.
Randfontein ...G	14/-	15/-	1 0	—	—	1 0	1,915,500	Witwatersrd.
Rand Mines ...G	17 1/2	17 1/2	18	1 0	—	1 0	332,788	Transvaal
Head's Drift ...D	15/-	17 1/2	13/3	1 0	—	1 0	57,000	Transvaal
Robinson ...G	7 1/2	7 1/2	7 0	5% Aug. '94	5 0	543,750	Transvaal	
Roodepoort Un. G	3/6	4/6	3/-	1 0	10 p.c. Aug. '94	1 0	100,000	Witwatersrd.
Randfontein ...G	14/-	15/-	1 0	—	—	1 0	1,915,500	Witwatersrd.
Rand Mines ...G	17 1/2	17 1/2	18	1 0	—	1 0	332,788	Transvaal
Head's Drift ...D	15/-	17 1/2	13/3	1 0	—	1 0	57,000	Transvaal
Robinson ...G	7 1/2	7 1/2	7 0	5% Aug. '94	5 0	543,750	Transvaal	
Roodepoort Un. G	3/6	4/6	3/-	1 0	10 p.c. Aug. '94	1 0	100,000	Witwatersrd.
ShebaG	28/6	29/5	29/	1 0	1/- Sept. '94	1 0	614,450	Lydenburg ..
Slati ...G	2 1/2	2 1/2	2 1/2	1 0	50% Sept. '94	1 0	20,000	Transvaal
Simmer & Jack...G	9 1/2	9 1/2	9 1/2	1 0	10% May '94	1 0	83,000	Transvaal
Do New ...G	—	—	—	6 0	—	6 0	45,000	Transvaal
S.A. Gold Trust ...G	2 1/2	2 1/2	2 1/2	1 0	15% Nov. '94	1 0	220,000	South Africa
Spitzkop (New) G	10/6	11/6	10/6	1 0	—	1 0	89,770	Lydenburg ..
Staunhope ...G	2 1/2	2 1/2	2 1/2	1 0	50% Sept. '94	1 0	34,000	Witwatersrd.
Sutherland R. ...G	18/-	19/-	15/-	1 0	—	1 0	220,000	Zoutpanberg
Teutonia.....G	13/3	13/9	9 1/2	1 0	—	1 0	96,003	Witwatersrd.
The Reef ...G	—	—	—	6 0	—	1 0	150,000	Barberton
Trans. Coal Trust ...G	17/-	18/-	16 1/2	1 0</td				

COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

Frontino and Bolivia Gold Mining Company.

The directors have now received the written advices from the mines relating to the months of August and September, the short particulars as to produce, cost, and profit of which two months arrived by cablegram and were published in last month's circular. The statement for August is as follows:—3648 tons produced, bar gold, 2366 ounces; tributary gold produced, bar gold, 198 ounces; total, 2562 ounces. Also 50,486 lbs. of sulphurates, valued at £492 13s. 1d. Estimated value of the gold and sulphurates, £6498 6s. 3d.; cost at the mines, Medellin, and in London, £6082 0s. 5d.; estimated excess of returns, £416 5s. 10d. The statement for September is as follows:—3794 tons produced, bar gold, 3129 ounces; tributary gold produced, bar gold, 151 ounces; total, 3280 ounces; also 47,564 lbs. of sulphurates, valued at £477 6s. Estimated value of the gold and sulphurates, £8400 10s.; cost at the mines, Medellin, and in London, £5743 13s. 6d.; estimated excess of returns, £2656 16s. 6d. The particulars of extra cost included in the above two months, relating to the new machinery, have not yet arrived. The directors have received a cablegram from Mr. Eustice giving the results for the month of October. After adding to costs, payments made in London, such results are as follows:—Estimated value of gold, £9500; estimated cost, £5940. Estimated excess of returns for October, £3560. The agreed partition of the Tias water is one-half to each party. It appears that the Tias water is nearly double the volume of the Pocune water—so that this company's half of it will nearly double the supply to Salada and to Silencio after use at Salada. The other half of the Tias water, less the loss through previous use of it by the other parties, will serve to augment the supply to Cordoba mill.

Rooedeport Deep Level Gold Mining Company.

The report of the directors for the period ended June 30 states that at the date of the last meeting the main shaft had just reached the reefs. Since then the work of developing them has been pushed on with all possible speed by means of machine drills. Three levels are now being driven both east and west on the south reef, and the assay plan of the mine shows the satisfactory average yield of 1 ounce 9 dwt. 5 grains of fine gold per ton of 2000 lbs. over a stope width of 2 feet. A level has also been commenced on the main reef, which, so far, has given low results, but as it assayed 1 ounce 13 dwt. 7 grains where it was struck in the borehole, it is expected that further development will prove a considerable portion of this reef to be also payable; this view is confirmed by the results obtained by the Durban-Rooedeport Company working this reef above us. The additions to the plant comprise new winding engines and boilers, pumps, air compressors, rock drills, and machine workshops. The question of an adequate water supply for the battery, for which tenders have been invited, has had the anxious attention of the directors, and they are pleased to be able to report that by the purchase of the Ida Company's assets for the sum of £5579 8s., this question has been satisfactorily settled. The property acquired consists of excellent water rights, a considerable amount of machinery and plant, and some 90 claims to the dip of the company's property, which should be of considerable value as deep-level mining progresses. The original working capital of the company was practically exhausted when the reefs were struck; further operations have been carried on by means of advances made by the Consolidated Gold Fields of South Africa (Limited), and by the issue of the 10,000 shares which were then in reserve. Now that the richness of the south reef is assured, and the credit of the company stands high, the directors have determined to propose to the shareholders an increase of the capital of the company by the creation of 60,000 new shares of £1 each. Should this be sanctioned by the extraordinary general meeting, to be held subsequently to the ordinary general meeting, they propose to offer 50,000 of these new shares to the shareholders *pro rata*, at the price of 35s., holding the remaining 10,000 shares in reserve. The amount to be thus raised will, in the opinion of the board, be ample to complete all the operations necessary to bring the company into a dividend-earning position.

The Ouro Preto Gold Mines of Brazil.

The report of the directors to be presented to the shareholders at the third ordinary general meeting states that the revenue account shows that the value of the gold produced during the year was £49,212 17s. 8d., which, with the small sums received for rent, &c., brought up the total income to £49,250 14s. 3d. The total expenditure was £40,818 8s. 2d., leaving a balance of profit of £8441 6s. 1d. to be carried to profit and loss account, which has been dealt with as follows: The sum of £1312 1s. 11d. has been written off for depreciation of buildings, machinery, and plant at the mines, £3000 10s. has been paid for interest on the debentures, £11 7s. 9d. has been paid as balance of income tax, and £3000 has been carried to a reserve fund to meet the redemption of the debentures. These items and the debit balance of £144 5s. 7d., brought from the previous account, amount to £4747 5s. 3d., leaving a credit balance of £967 0s. 10d. to be carried to next account. The quantity of ore crushed was 38,919 tons, as compared with 39,692 tons in the previous year. The smaller quantity is accounted for by the fact that the old 24-stamp mill was only patched up to last until the new 20-stamp mill was ready to start. This mill was only completed by the end of June, and consequently no benefit was derived from it during the past financial year. It has, however, run most satisfactorily since the close of that period, the quantity crushed by it in the month of July having been 1341 tons, as compared with about 400 tons per month by the old mill, which it has replaced. Notwithstanding the smaller quantity of stone crushed, the value of the gold produced during the year amounted to £4511 7s. 8d. more than in the previous twelve months. About £3500 of this sum was saved by the improved method of treatment, the remaining £1000 being due to the better quality of the ore.

Devon Great Consols Company.

The statement of account of receipts and expenditure for the half-year ending October 31, 1894, shows a credit balance of £2622 17s. 1d. The amounts received for copper ore and arsenic during the past six months, says the directors' report, have been £13,752 15s. 4d., which, with the amount of the copper ore sold on October 18, receivable on the 18th inst., make a total of £14,289 11s. 6d. Satisfactory contracts, both as regards quality and price, for 12 months' supply of coal have been made. A large stock of staves (for making arsenic barrels) has been purchased on favourable terms, and delivered at the works in excellent condition. Arrangements are being made for the supply of about two or three years' stock of rails, for keeping in good order the 5 or 6 miles of railway in possession of the company. The continued low price of copper has militated much against the receipts for sales of this company's ores, but there is some hope of obtaining improved prices for both copper and arsenic shortly. The directors

paid 3s. per share dividend in May, 1893, 3s. in November, 1893, and 3s. in May, 1894, making £1,216,937 18s. paid to the shareholders during the last 50 years, and they will, at the forthcoming general meeting, announce the declaration of a further dividend.

Albion Gold Mines.

The report for the year ended September 30 shows a debit balance of £2954 18s. 9d. "In the month of January last it was found that milling from the Talcoose Mine could not be continued without further development work on a large scale being done. The company's funds were exhausted, and, consequently, mining operations had to be suspended, though the directors' advices up to the date of their last report (December 5, 1893) had led them to anticipate regular crushings. It became necessary to raise a sum of £5000 or £6000 before work could be resumed. After frequent consultations with the shareholders, both privately and in general meeting, it was resolved to make an issue of 10 per cent. mortgage debentures, of which £3010 was ultimately subscribed. A further sum of £2500 of preference shares was also subscribed, making the total amount raised £5510. Mr. Joseph Burton Settle was engaged as general manager and engineer. He sailed, accompanied by an assistant, on August 11 last, and took over the management on September 21 last. The board decided, with the approval of the shareholders, to confine operations to the Albion Mine. Mr. Settle closed down the Talcoose Mine, and proceeded to prepare the foundations for the erection of the pumping machinery, which had been on the mine since August 30, 1893. Good progress is being made with this work, and the board hopes that early in December the Albion Mine will be unwatered. It is intended to open up the Albion Mine to a substantial extent before attempting to resume regular crushings."

Village Main Reef Gold Mining Company.

The report for 18 months to June 30 last states that during the period under review "the works of development from No. 1 shaft have been extended by 3031 feet of driving and 1480 feet of winzes and rises; whilst No. 2 shaft, which should intersect the reefs at a depth of 1000 feet, is now down 518 feet. From this shaft the whole of the property east of the Grahamstown dyke will be worked. This section is estimated to give 550,000 tons from the south reef alone. The workings from the shaft are expected to reach the reefs in July of next year. The reserves of ore made available by these developments amounted to 12,500 tons, and these would have been considerably greater but for the occurrence of a fault in the reefs which has cut out the ore in a portion of Nos. 2 and 3 levels. This fault has now been passed through, and the reserves will, therefore, be rapidly increased. The whole 20 head battery has been entirely rebuilt and the weight of the stamps increased, whilst another 20 heads of heavy stamps have been added, the capacity of the mill being thus increased to 4000 tons a month; but, as it is intended to largely increase the stamping power in anticipation of cutting the reefs in No. 2 shaft, the board is considering the advisability of temporarily shutting down the present mill, as it is well known that a mill of 80 or 100 stamps has a greater earning capacity per ton than one of 40 stamps. The ore now being developed can consequently be milled to greater advantage when the mine has had its full complement of stamps. Very considerable additions have been made to the surface buildings, &c. (besides the rebuilding and enlargement of the battery and consequent increase of boiler and engine power) in the shape of stone breaker house, and sorting floors, native compound and hospital, stables, store, and workshops. The additions to the machinery comprise new winding engines, air compressors, tailings wheel, underground hauling engine, electric light installation, &c. The company has also acquired the cyanide works erected on its property by the African Gold Recovery Company. The gold produced during the period was of the value of £88,724 18s. 8d. Although the profits, as shown by the accounts, are sufficient to provide a substantial dividend, the directors consider that they are consulting the best interests of the shareholders in not recommending any distribution at present."

Warrants for dividend No. 1 have been posted to the shareholders in the GLENCAIRN MAIN REEF GOLD MINING COMPANY.

An instalment of £2 on account of the arrears on the preference shares of the NANTYGOLO AND BLAINA IRONWORKS has been paid.

The OCEANA COMPANY have established an office in Paris at 19, Rue de Lafayette.

The BANK OF AFRICA has opened a branch at Beira, East Africa.

Letters of allotment and regret in the LONDONDERRY GOLD MINE (LIMITED) have been posted.

The directors of the DAY DAWN P.C. COMPANY have sold through Messrs. Johnson, Matthey and Co., the gold ex steamship *Jelunga*, which realised £2866 17s. 5d.

At a meeting of the directors of the CAPE COPPER COMPANY (LIMITED) it was resolved: "That a dividend of 1s. 3d. per share be declared on the cumulative preference and ordinary shares, free of income-tax, payable on January 1, 1895, to the shareholders on the books of the company on the 5th day of December, 1894, and that the treasury books be closed during the said 5th day of December, 1894." Preference coupons No. 6, and ordinary coupons No. 18, will be paid at the above rate, free of income-tax, on presentation at the company's office.

REPORTS FROM THE MINES.

We find it necessary to announce that, owing to the vast numbers of mining reports, and items of mining intelligence which reach us invariably very late up to, and frequently after, the time of going to press—it is impossible to guarantee the insertion of all of them in the issue in which, in ordinary course they should appear. We always endeavour, however, to make this important feature as complete as possible, and if the secretaries of mining companies, mining captains, and others would kindly make an effort to let us have them earlier in the week, their doing so would go far to ensure their insertion, and to promote the completeness of our Mining Intelligence.

BRITISH MINES.

GREEN HURTH.—November 16: Annie's Vein. I am pleased to inform you that since sending my last report, we have a decided improvement at the south forehead, some strong leads have fed into the vein from the east side. The end is worth for lead 2 tons per fathom, and is looking well in the roof. We have, therefore, resumed driving on the heading above.—West vein. The underhand stope north is worth 1 ton per fathom. At the south forehead we are driving in a good vein, but it is strongly mixed with barytes. The bottom part of the drivage is showing lead worth 15 cwt.s. per fathom. The upper part is without ore, showing a rib of barytes 7 inches wide. The intermediate vein south is without any change this week—worth for lead 10 cwt.s. per fathom.—West cross cut at 30 level. This has been driven west 2 fathoms from No. 1 vein.—Trial by adit at surface. At the ontopor where we have commenced this level the ground is rather flat, so that we have had an open cutting for 3 or 4 fathoms. We are just now beginning to get

under the hill. The end is in clay with plate bed at the bottom. W. Gray.

LEADHILLS.—W. H. Paul, November 19: Brown's vein. The 160 fathom level south of Wilson's shaft is going forward at a good rate on vein 4 feet wide, which has during the past few days varied a good deal in produce, now worth 15 cwt.s. of ore per fathom. The 160 fathom level driving north of Jeffrey's shaft is in a vein over 4 feet wide, showing a little ore, but not sufficient to value. The winze sinking below the 145 fathom level south of Wilson's shaft is now nearly down to the depth of the 160 fathom level vein still unproductive; No. 2 stope over the 145 fathom level north of Jeffrey's shaft is yielding 40 cwt.s. of ore per fathom. No. 3 stope over same level north is producing 25 cwt.s. of ore per fathom. No. 4 stope over ditto is worth 30 cwt.s. of ore per fathom. The vein in the 115 fathom level going north of Jeffrey's shaft is 4 feet wide, containing a good mixture of spar, but no ore to value. The stope over this level north of Jeffrey's shaft is worth 15 cwt.s. of ore per fathom and nearly worked out. In the 100 fathom level, driving south of Wilson's shaft, the vein is 4 feet wide, composed of kindly stone and strong spar, with a little water issuing from forebreast. No change in cross cut east at this level worthy of remark. The vein in the 85 fathom level driving south of Wilson's shaft contains a little more spar than of late, but no other change therein. The various other stopes throughout the mine are yielding about their usual quantities of ore.—Sarrawcole Vein. Grips adit south is going forward on this vein, which is over 4 feet wide, composed of strong spar barytes, and occasionally good stones of lead ore are met with. Water flows freely from forebreast, and from present appearances we expect to meet with a productive lode here shortly.

POLBERRO.—November 19: We have considered it advisable to cut ground in the shaft for skip road before proceeding to fit the angle bob, and have consequently, since our last report, completed cutting the ground for the skip road. We have now commenced fixing the bob, and shall complete this as soon as possible. We have sunk the engine shaft 3½ fathoms below the 26 level. In the 26 east on the Pink lode we have driven through the crossing referred to in the last report. This crossing has not materially influenced the lode in any way. The lode in the end is now 4½ feet wide, and worth for tin £8 per fathom. There is rather more mudstone in this end than for some time past. The 26 cross cut north has been driven 4½ fathoms, and continues to intersect small branches carrying a little tin. We have not suffered in any way from the recent heavy rains.—(Signed) Charles Thomas, John Harper.

SOUTH CONDURROW.—November 21: There is no alteration to notice in the bottom of Marshall's shaft. The lode in the rise above the 163 has a very promising appearance; it is of good width, well defined, and is letting out water freely, and is worth £8 per fathom for tin. The lode in the 153 end is looking better, and is yielding rich stones of tin. The stops in the back of the 153 is worth £9 per fathom.—(Signed) Wm. Rich, Wm. Thomas, F. Rich.

WHEAL FRIENDLY (St. Agnes).—November 20: Wheal Friendly committee. The Pink lode in the 10 fathom east is being driven at £8 per fathom. The lode is 4 feet wide, and producing 40 lbs. of tin to the ton of stuff. The intermediate end east of rise is being driven by a full pair of men at £8 per fathom, and I am pleased to state that the lode still continues rich for tin, being worth fully £20 per fathom. We are opening up rich stoping ground. I will send a full report for the general meeting.—(Signed) Nicholas Vivian.

WEST KITTY.—November 22: In driving the 108 fathom level west the lode is worth £7 per fathom. The lode in the 94 west is worth £8 per fathom. The lode in the 84 west is worth £11 per fathom. In driving east at the 60 fathom level south of slide the lode is worth £15 per fathom. The lode in the 60 fathom west is worth £14 per fathom. The rise in back of the 60 fathom level is worth £10 per fathom. There is no change to notice in the tributary pitches or the stopes since we reported last. We had a few feet of water at the bottom of the mine for some days on account of the heavy floods of rain, but the men could all work at their different places. We are now putting on the roof to the engine house at Thomas's.—(Signed) Joel Hooper, John Williams.

COLONIAL, INDIAN, AND FOREIGN MINES.

NEW GUSTON.—The following cable information has been received from the mine: Output September month. Ore shipped, 545 tons. Value estimated \$17,442. Mine expenses, \$11,360.—Output October month. Ore shipped, 205 car loads (2700 tons.) Value not yet ascertained.—Ore shipments. The tonnage for September month, viz., 545 tons, consisted of 475 tons of high grade ore shipped to the San Juan smelter, Durango, and 70 tons sent to the Silverton smelter. The tonnage for October month, viz., 205 carloads (2700 tons), consisted of 21 cars of high grade ore, shipped to the San Juan smelter and 184 cars sent to the Silverton smelter. The mine superintendent under date 3rd November, reports, viz.—No. 6 level, midway drift stop. Operations have been suspended here during the past fortnight. Midway drift, cross drift, stope. Height of stope over back of midway drift 40 feet, length 46 feet. Ore scattered. Character of ore, iron pyrites, with, in places, nodules of yellow copper. Value of iron pyrites 12 to 50 ounces silver per ton; gold one quarter to four tenths ounce per ton. Value of yellow copper 100 to 150 ounces silver per ton; gold ½ to 1½ ounce per ton; copper 8 per cent.—No. 9 level, south drift, stope. Average height of stope over back of level 34 feet, length 107 feet; width of ore throughout the stope from 3 to 24 feet; average width of ore for length of stope 13 feet. Three classes of ore are being met with, viz., (1) Peacock copper, (2) yellow copper, (3) iron pyrites. Value of ores—(1) Peacock copper 140 ounces silver per ton; gold ½ to 3 ounces per ton; copper 30 per cent.; (2) yellow copper 35 to 45 ounces silver per ton; gold 3-10 to ½ ounce per ton; copper 14 to 16 per cent.; (3) iron pyrites 6 to 18 ounces silver per ton; gold 3-10 to ½ ounce per ton; copper 3 to 5 per cent. The stope continues to look well.—No. 10 level, south drift, No. 1 stope. Average height of stope over back of level 27 feet, length 90 feet. North portion of stope, average width of ore 1 foot for 30 feet in length. South portion of stope, average width of ore 10 feet for 60 feet length. For a length of about 30 feet, the ore is from 10 to 20 feet in width. Three classes of ore are being met with, viz., (1) Peacock copper, (2) yellow copper, (3) iron pyrites. Value of ores—(1) Peacock copper 130 to 150 ounces per ton; gold ½ to 4 ounces per ton; copper 30 to 35 per cent.; (2) yellow copper 14 to 35 ounces silver per ton; gold 3-10 to ½ ounce per ton; copper 12 to 20 per cent.; (3) iron pyrites 6 to 22 ounces silver per ton; gold 2-10 to 3-10 ounce per ton; copper 2 to 4 per cent. The south portion of the stope continues to look well. South drift, winze. Depth sunk 3 feet, total depth of winze below base of level 59 feet, width of ore being carried in sinking full width of winze (viz., 5 feet), actual width not determined. Character of ore, yellow copper and iron pyrites. Value of ores—yellow copper 14 to 22 ounce silver per ton; gold 3-10 to ½ ounce per ton; copper 8 to 14 per cent. The winze has been communicated with the north drift raise at No. 11 level.—No. 11 level, north drift, raise. Height raised 2 feet, total height of raise over back of level 34 feet. Width of ore exposed for length of raise 9 feet. Three classes of ore are being met with, viz., (1) Peacock copper 150 to 260 ounces silver per ton; gold ½ to 1½ ounce per ton; copper 35 to 40 per cent.; (2) yellow copper 20 to 23 ounces silver per ton; gold 4-10 to 6-10 ounce per ton; copper 10 to 15 per cent.; (3) iron pyrites 7 to 18 ounces silver per ton; gold, 3-10 to ½ ounce per ton; copper, 2 to 8 per cent. This raise has been holed to the winze sunk from No. 10 level south drift, and the ventilation much improved.—South drift, stope. Average height of stope over back of level, 14 feet; length, 60 feet; width of ore from 3 to 16 feet; average width of ore for length of stope, 9 feet. Character and class of ore same as in the north drift raise. The stope continues to look throughout.—No. 12 level, south drift. Distance driven, 4 feet; total distance driven from shafts cross cut, 55 feet; width of ore in forebreast, 10 feet. Character of ore, iron pyrites. Value, 3 to 7 ounces silver per ton; gold, 1-10 to 3-10 ounces per ton; copper, 2 to 3 per cent. During the fortnight the drift has been cleared of ore and waste and operations resumed.

ALMADA AND TIRITO.—Report for month ending October 27: Dios Padre. The lode in the 250 feet level driving north has a very congenial appearance and is slightly mineralised, with a small quantity of water issuing from fissures in the bottom of the level; 207 feet were driven by 4 men. Having passed through the debris and old workings south we have resumed driving the 250 on a massive lode of quartz yielding occasional stones of green ore. Our stopes continue to yield fair quantities of good grade ore, and the works generally are proceeding with regularity.

AUSTRALIAN BROKEN HILL CONSOLS.—The mining manager reports by mail for the fortnight ended October 11: Block 96, 280 level east prospecting drive No. 4 rise. Stopes driven 37 feet. Stoping on rich ore continued, yielding native and hornsilver and chloride and iodide of silver, but in small quantities. The ore in the north eastern stope is still keeping in line with the indicator. The lode in the northern stope is widening, and more defined, but showing no ore. The western stope is being carried a head on the level to prospect the western extremity of the shoot of ore; the mundic is showing still strong. Incline sunk 6 inches, total 580 feet. Have stopped sinking for the present, and men are now opening out on the lode to the eastward. No. 2 level east off incline driven 7 feet, and No. 2 level west off incline stopes driven 2 feet. A little galena and fahlerz has been met with here. No. 1 rise off No. 4 east off incline. Stopes driven 12 feet. In stoping we have come to the indicator, which, in my opinion, is the same we followed in the upper levels of the incline and main rise, under which the deposits of rich ore were found, the lode formation being 4 feet wide, carrying two veins of carbonate of iron and calcite, showing galena, fahlerz, and mundic.—Note. The quantity of rock mined during the fortnight was 2123 cubic feet. The pump has been repaired and fixed in main shaft below the 280 level.

BAYLEY'S REWARD CLAIM.—Manager's report for fortnight ended September 29: During the week the cage road has been brought down from the 220 feet level to the shaft bottom. Frame fixed at the 280 feet, and started opening out each side of the shaft. As soon as the chambers are completed sinking will again be renewed, and probably driving both at the same time.—West crosscut. Gorries has been extended 5 feet, full length now being 195 feet. In the early part of the week there was a slight change for the better, but did not continue, the wet again coming in very hard; it is now the hardest I have seen in any part of the mine, black quartzite, almost like flint.—Rise 100 feet level. Since last report a rise has been started from the back of the 100 feet level 40 feet north of the Gordon shaft. This will be connected with the No. 1 intermediate, present distance from back of drive 10 feet. Lode 5 feet thick, strongly iron stained, and should be good batting stone.—No. 1 intermediate. Stoping continued in this drive, at times exposing some very nice gold.—100 feet stopes. There is little or no change to report, being similar to last week. North drive 50 feet Gordon shaft has been driven 4 feet, total 69 feet. Lode still from 7 to 8 feet wide.—Air shaft. North of Gordon, 11 feet, and connected with the 50 feet drive, which will thoroughly ventilate this portion of the mine, and enable some of the working to be filled with debris from the surface when required.—Everard shaft. North drive has been advanced 6 feet, total 111 feet from shaft. Lode still strong and of a very promising appearance.—Stopes. During the week have returned some very nice gold indeed.—Cockshot shaft. Work has been continuing in the north drive. The lode is now 16 feet 9 inches wide wall to wall; at present it is really a splendid formation, and this week we have seen some very nice gold in the hanging wall sides. It is intended to resume sinking the air shaft, which is midway between Cockshot and Everard shafts. This when sunk to the required depth will be driven and connected with the north drive from Cockshot.—Buildings. The enlargement of the buildings to enclose the machinery is being continued. We are also constructing two new tailing pits to enable us to crush with another five stampers as soon as water can be obtained.—Stone crushed. During the week there has been crushed 90 tons 7 cwt., being from strong room. Gold returned, 700 ounces.—W. H. Matthews. Ore and gold return: Summary for fortnight ending September 15. Estimated amount of stone at grass, 4062 tons; stone raised, 250 tons; stone treated, 154 tons; gold won, 1400 ounces.

BRITISH BROKEN HILL PROPRIETARY.—Mining manager's report for the week ending October 10: Blackwood shaft (No. 1), 150 feet level. East crosscut extended 8 feet, total length from above shaft 25 feet. Face still showing intrusive mullock.—Howell (No. 2 shaft), 300 feet level. North-east drive driven 4 feet, total length 40 feet. Face still in hard sulphides mixed with garnet sandstone, —Marsh (No. 6) shaft, 2nd level. South drive off No. 3 east crosscut lengthened 7 feet, total length 32 feet. Face showing low grade carbonate ore in patches. Have also timbered up a portion of this drive. We broke 9 tons, assaying 21 per cent. lead and 15 ounces silver per ton. In No. 2 uprise over No. 4 east crosscut we have been fossicking around the ore chutes. We broke 5 tons, assaying 34 per cent. lead and 26 ounces per ton.—Stopes. From the stope going northwards over main south drive we broke 2 tons assaying 26 per cent. lead and 40 ounces silver per ton, and 6 tons 19 per cent. lead and 16 ounces silver. From south stope off No. 2 west crosscut we broke 14 tons, averaging 28 per cent. lead and 19 ounces silver. From the north stope down winze we broke 16 tons, averaging 40 per cent. lead and 285 ounces silver per ton, and from the south stope 13 tons, assaying 24 per cent. and 65 ounces, and 3 tons 26 per cent. lead and 40 ounces silver per ton.—Retallick's winze. North drive extended 9 feet, total length from winze 43 feet. We broke in driving 11 tons, assaying 29 per cent. lead and 19 ounces silver per ton. South drive is advanced 5 feet, making its total length 33 feet. Are now rising in this south drive for purpose of connection with 115 feet level of Retallick's shaft. In doing this work we broke 9 tons, assaying 28 per cent. lead and 26 ounces silver per ton. The assays for the week vary from 7 to 50 per cent. lead and from 65 to 1086 ounces silver per ton.

BALAGHAT MYSORE.—Captain Joseph Pryor, October 31: Ogle's shaft. I am pleased to say we have not only succeeded in forking the water referred to in my last, but we have again resumed the sinking of the shaft. It is now down 52 feet 6 inches below the 800 feet level. The quartz is over 1 foot wide and assays 18 dwts. 2 grains. Our water has lately so increased that it has been a very difficult matter to keep the mine in fork; we therefore decided to enlarge a portion of the pitwork and to substitute a 9 inch plunger pole for the 8 inch one previously fixed at the 410 feet level. We changed this pole last Saturday, and I am glad to say it is working most satisfactorily, and we have since drained the mine to the bottom of the shaft, and as stated above resumed operations therein. The 800 feet level south has been driven 18 feet 9 inches, or 91 feet 9 inches from the shaft. The quartz varies from 6 to 3 inches wide, and assays 4 dwts. At a distance of 60 feet from the shaft we have just commenced sinking a winze (No. 1); it is now down 3 feet 6 inches below the level; the quartz is about 3 inches wide and assays 6 dwts. We expect ere long to meet with an improvement in this winze. The 800 feet level north has been driven 8 feet 6 inches, or 243 feet from the shaft; the quartz has again improved, and is now 1 foot wide, and assays 8 dwts 2 grains. This end is now communicated with the level south of Haines' shaft. This has not only very considerably improved our ventilation, but has also greatly increased our facilities for clearing the stuff from this part of the mine. The No. 2 winze in the bottom of this level has been sunk 3 feet 3 inches or 37 feet 3 inches below the level. The quartz is improving a little in size, being now from 3 to 6 inches wide, and assays 14 dwts. The stopes in the bottom and back of this level yield quartz of from 6 inches to 1 foot wide, and assay 2 ounces 9 dwts, 15 grains. The cutting of the necessary ground for the balance bob to be fixed at the 500 feet level has at last been completed, and the men are now engaged cutting hitches for the timbers preparatory to fixing the bob. This work is being forced as fast as circumstances will admit, and we hope to have the bob completed and in working order at an early date.—Haines' shaft. We have so far succeeded in securing the ground around this shaft as to now admit of our again starting the sinking, and the men have to-day commenced to do so. The shaft is down about 20 feet below the 870 feet level; it produces quartz of from 9 to 15 inches wide, and assays 6 dwts. 7 grains. In addition to securing the ground in the shaft, we have also practically completed the tip plat (it will

be in full working order in another day or so) as well as laid the double skip road to within a few feet of the bottom of the shaft. We hope, therefore, to be now able to push forward the sinking without any further material hindrance. The 870 feet level south has been driven 18 feet 6 inches, or 157 feet 3 inches from the shaft. The quartz continues to average about 2 feet 3 inches wide; its assay value this week, 5 dwts, 2 grains, is, however, not so good as last reported, but I think this will very soon again improve. We have been obliged on account of the increasing water to suspend the sinking of the No. 1 winze for a while, but expect to be able to again resume it later on. The stopes in the back of this level produce quartz of 1 foot to 2 feet wide, and assay on an average 5 dwts. 23 grains. The stopes in the back of the 870 feet level north produce quartz of from 1 foot 6 inches to 2 feet 6 inches wide, but assay only 2 dwts 7 grains. The No. 2 winze in the bottom of the 800 feet level south has only been sunk 4 feet 3 inches or 44 feet 9 inches below the level. The quartz is 1 foot 4 inches wide, and assays 10 dwts. 4 grains. The stopes in the bottom and back of this level yield quartz of from 9 to 15 inches wide, and assay on an average 10 dwts. 5 grains. The stopes in the bottom and back of the 730 feet level south (as formerly reported north of Ogle's) yield quartz of from 9 inches to 1 foot wide, and assay on an average 15 dwts. 7 grains.—Tennant's shaft. We have completed the tip-plat, &c., at the 420 feet level and intend resuming the sinking of the shaft to-morrow (1st proximo), the present depth of which is 27 feet 6 inches below the level. The 420 feet level north has been driven 22 feet 9 inches, or 105 feet 9 inches from the shaft. The quartz for this distance has varied from 2 feet 3 inches to 1 foot wide, but during the last blast or two it has further decreased in size. I however hope this pinching is only of a temporary nature, and that the quartz will very soon again increase in size. The last assay yielded 2 ounces 6 dwts. 12 grains. At a distance of 80 feet from the shaft we have just started to sink a new or No. 1 winze. It is now 2 feet below the level. The quartz is 2 feet wide, and assays 10 dwts. 4 grains. The cross cut east at this level (referred to in my last report) has been extended 12 feet 3 inches. At this distance we communicated with the winze being sunk below the 350 feet level. This communication besides very considerably improving our ventilation has also laid open a section of stoping ground, the stopping of which will be commenced at an early date. Having effected the object of the east cross cut we have removed the men engaged therein, and again resumed the driving of, the 420 feet level south, and extended the same 3 feet 6 inches, or 18 feet 3 inches from the cross cut. The lode continues to be of a kindly character, but as yet it does not produce any quartz to value. The mid-level (between the 420 and 350 feet levels) has been advanced 20 feet 6 inches or 47 feet 3 inches from the shaft. The lode has recently again improved, and now yields quartz of 1 foot 4 inches wide, and of an assay value of 15 dwts. 7 grains. The 350 feet level north has been driven 7 feet 6 inches, or 204 feet 9 inches from the shaft. The lode is at present unproductive. Not being satisfied whether another part of the lode might still be standing to the west of us, we have suspended this end for a while, and put the men to crosscut. This has been advanced 5 feet 6 inches from the level. The No. 1 winze has been sunk to a depth 65 feet below the level, and as referred to above, is now communicated with the 420 feet level. The rise in the back of this level has been advanced 4 feet 6 inches, or 81 feet 6 inches above the level. The quartz has become smaller, being now only 6 inches wide, and assays only 4 dwts. The No. 1 winze, in the bottom of the 350 feet level south, has been sunk 5 feet 6 inches, or 46 feet 6 inches below the level. The quartz is at present small and assays only 4 dwts. The 285 feet level north has been driven 3 feet 9 inches, or 58 feet 9 inches from the shaft. The quartz is 6 to 9 inches wide, and of an assay value of 5 dwts. 2 grains. We have suspended the driving for a while, and put the men to sink so as to effect the communication with the rise in the back of the 350 feet level as early as possible.—Surface. The masonry loading for the small pumping engine at Haines's shaft has been completed, and the engineers are now proceeding with the erection of the engine.

FORBES REEF.—The mine manager reports, under letter dated October 22, as follows: Main shaft drifts. Several quartz leaders, varying from 1 to 6 inches in width, have been cut in the north drift this week, now carrying gold. The south drift is still in broken country.

GUY FAWKES REEF.—The following extracts are from Mr. Pardy's letter received by this morning's mail, under date of The Fort, Massi Kessi, September 26: The prospects of our property are indeed brilliant, and when the mill is erected everyone here who has been over the mine predicts great things from the crushings. By the end of October the railway will be within 50 miles of the Guy Fawkes reef. The battery will be erected before the end of December, but the time will not be wasted, as the development of the mine will be actively continued so as to have plenty of stuff at grass ready for the mill. In the 322 feet of drives some very rich leaders have been cut, also some decomposed green stone carrying payable gold. All in the camp are well. On the 2nd November, Mr. Pardy wired:—"Struck rich reef. Guy Fawkes reef has an average assay of 4 ounces to the ton. Good progress made." And on the 8th:—"The mine has been favourably reported on as exceeding rich by the surveyor general."

HARRIETVILLE.—Fortnightly report of Mr. T. G. Davis, superintendent, dated October 12: Mons Meg Mine. South drive 100 feet below tunnel D on main shoot advanced 12 feet, width of lode not yet determined. Veinlets of quartz carrying visible gold. We are hoping that the main shoot has been thrown in this direction by the last or No. 3 fault, and that we may meet with payable stone very soon. Total length of drive 86 feet.—Stopes. Lode in stope south of main winze below D 4 feet wide, and assaying 3 dwts. per ton.—Underhand stope north of winze below D. Lode 8 feet wide, assaying 4 dwts. per ton.—Stope at back of D. Lode 12 feet wide, assaying 6 dwts. per ton. Lode in south stope at back of 240 feet level below J 18 inches wide, assaying 5 dwts. per ton. Lode at back of 100 feet level below J 3 feet wide, assaying 1 ounce per ton. This stope is of limited extent.—Underhand stope below tunnel J. Lode 2 feet wide, assaying 8 dwts. per ton.—Saint Bernard Mine. Drivethrough debris near end of lower tunnel advanced 42 feet, total 113 feet. Large lode overhead carrying occasional colours of gold. Cross cut from drive south at Grimsley's tunnel advanced 30 feet, intersecting a small seam of lode matter on which a drive has been extended 13 feet developing a vein of quartz 1 foot wide, which carries fairly coarse gold, and is valued at 3 dwts. per ton. Upper tunnel advanced 23 feet towards rich vein, total 268 feet. Pennsylvania shaft should be reached in a few days.

HARMONY GOLD AND LAND.—The secretary of this company informs us that a letter, dated October 24, from the manager of this company at Leydsdorp has been received as follows: It seems that people on the Rand are beginning to turn their attention once more towards these fields, and I think it will not be long before we see another rush this way. Stands in Leydsdorp are consequently going up in price. The Gravelotte, Sutherland Reef, Block B, and the Silati Company are all working hard, and we with the most ground and the greatest chances are the only company that is doing nothing. The Sutherland Reef battery is expected any day now, and I hear they are turning out some very rich ore. Everything is now ready for erecting the mill as soon as it arrives, so there will be no time lost in turning out the gold. The Gravelotte Company expect their battery shortly. The reef is about 10 feet wide, and should mill considerably over an ounce. This reef, as I wrote you last year, might by a little work be picked up on your ground, as we can trace the same formation right across your farms. The secretary states that, as arranged at the last meeting, Mr. J. Proctor will leave on the 24th inst. for the Transvaal to make arrangements for the prompt development of the property.

MOUNT ZEEHAN.—Manager reports for week ended October 9: Argent section, Main engine shaft. No. 6 lode, 72 feet level south, extended 14 feet 6 inches, total 263 feet 6 inches. After driving 9 feet carbonate of iron began to make in the face, and has opened out into a strongly defined lode 3 feet wide, carrying fair seconds, a piece assaying 30 per cent. lead and 33 ounces silver per ton. 132 feet level north extended 12 feet 6 inches, total 185 feet. Lode is confined to the footwall. During the last 6 feet a change of country has come in which we consider favourable for carrying galena. Con-

centrator has been run 45 hours on Zeehan Montana Company's ore and crushed 166 tons seconds, making with quantity previously reported 221 tons, producing 22 tons 18 cwt. concentrates, containing about 17 tons 7 cwt. lead, and 2162 ounces silver.

MYSORE GOLD.—October 31: Mining operations for the fortnight ending October 29: Rowse's shaft, 1460 crosscut west. This end has been driven 7 feet, making a total distance driven of 215 feet. We have temporarily suspended the driving of this end, and have put the machine to sink a winze in the bottom of the 1260 feet level south.—1460 feet level south of winze. This end has been driven 13 feet, making a total distance driven of 71 feet 6 inches. The lode is 1 foot wide, assaying 3 dwts. 6 grains.—1360 feet level south of crosscut. This end has been driven 7 feet 6 inches, making a total distance driven of 148 feet 10 inches. The lode is 9 inches wide, assaying 2 ounces. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 9 dwts. 2 grains.—1360 feet level north of winze. The lode in the stope in the back of this level is 6 feet wide, assaying 7 dwts. 3 grains.—1260 feet level north. There are four stopes in the back of this level, the average width of the lode being 5 feet 1 inch, giving an average assay of 19 dwts. 9 grains.—1260 feet level south. This has been driven 16 feet, making a total distance driven of 217 feet 6 inches. The lode is 2 feet 6 inches wide, assaying 1 ounce 13 dwts. We have commenced to sink a winze in the bottom of this level 110 feet from the point of the fold, sunk 13 feet. The lode is 2 feet 6 inches wide, assaying 1 ounce 8 dwts. There are four stopes in the back of this level, the average width of the lode being 2 feet 3 inches, giving an average assay of 1 ounce 7 dwts. 10 grains.—1160 feet level north. There are 7 stopes in this level, the average width of the lode being 2 feet, giving an average assay of 1 ounce 3 grains.—1160 feet level south. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 1 ounce 4 dwts. 19 grains.—990 feet level north. We have a pair of men engaged stripping down side in the back of this level in which the lode is 1 foot wide, assaying 1 ounce.—990 feet level north. The lode in the stope in the back of this level is 3 feet wide, assaying 2 ounces. The lode in the stope in the back of this level is 3 feet wide, assaying 2 ounces 3 dwts. 6 grains.—780 feet level north. There are four stopes in the back of this level, the average width of the lode being 3 feet wide, assaying 1 ounce 21 grains.—780 feet level north on new chute. This end has been driven 20 feet, making a total distance driven of 140 feet 6 inches. The lode is 2 feet wide, assaying 6 dwts. 12 grains. The rise in the back of this level has been put up 9 feet, making a total height of 28 feet. The lode is 2 feet 6 inches wide, assaying 4 ounces.—780 feet level south on new chute. This end has been driven 2 feet, making a total distance driven of 17 feet 6 inches. The lode is 1 foot wide, assaying 5 dwts. 5 grains.—620 feet level north of crosscut. This end has been driven 3 feet 6 inches, making a total distance driven of 276 feet 6 inches; there are some stringers of quartz which assay 2 dwts. 14 grains. There are three stopes in the back of this level, the average width of the lode being 4 feet 4 inches, giving an average assay of 6 dwts. 12 grains.—Croker's shaft. This shaft has been sunk 21 feet 6 inches, making a total depth of 82 feet below the 466 feet level. The lode is 1 foot 6 inches wide, assaying 2 dwts. 10 grains.—466 feet level north. There are four stopes in the back of this level, the average width of the lode being 1 foot 5 inches, giving an average assay of 1 ounce 19 dwts. 7 grains.—Taylor's shaft, 466 feet level north. The lode in the stope in the back of this level is 2 feet wide, assaying 1 ounce 21 grains.—466 feet level north on new chute. This end has been driven 20 feet, making a total distance driven of 140 feet 6 inches. The lode is 2 feet wide, assaying 6 dwts. 12 grains. The rise in the back of this level has been put up 9 feet, making a total height of 28 feet. The lode is 2 feet 6 inches wide, assaying 4 ounces.—780 feet level south on new chute. This end has been driven 2 feet, making a total distance driven of 17 feet 6 inches. The lode is 1 foot wide, assaying 5 dwts. 5 grains.—620 feet level north of crosscut. This end has been driven 3 feet 6 inches, making a total distance driven of 276 feet 6 inches; there are some stringers of quartz which assay 2 dwts. 14 grains. There are three stopes in the back of this level, the average width of the lode being 4 feet 4 inches, giving an average assay of 6 dwts. 12 grains.—Croker's shaft. This shaft has been sunk 21 feet 6 inches, making a total depth of 82 feet below the 466 feet level. The lode is 1 foot 6 inches wide, assaying 2 dwts. 10 grains.—466 feet level north. There are four stopes in the back of this level, the average width of the lode being 1 foot 5 inches, giving an average assay of 1 ounce 19 dwts. 7 grains.—Taylor's shaft, 466 feet level north. The lode in the stope in the back of this level is 2 feet wide, assaying 1 ounce 21 grains.—466 feet level north on new chute. This end has been driven 20 feet, making a total distance driven of 140 feet 6 inches. The lode is 2 feet wide, assaying 6 dwts. 12 grains. The rise in the back of this level has been put up 9 feet, making a total height of 28 feet. The lode is 2 feet 6 inches wide, assaying 4 ounces.—780 feet level south on new chute. This end has been driven 2 feet, making a total distance driven of 17 feet 6 inches. The lode is 1 foot wide, assaying 5 dwts. 5 grains.—620 feet level north of crosscut. This end has been driven 3 feet 6 inches, making a total distance driven of 276 feet 6 inches; there are some stringers of quartz which assay 2 dwts. 14 grains. There are three stopes in the back of this level, the average width of the lode being 4 feet 4 inches, giving an average assay of 6 dwts. 12 grains.—Croker's shaft. This shaft has been sunk 21 feet 6 inches, making a total depth of 82 feet below the 466 feet level. The lode is 1 foot 6 inches wide, assaying 2 dwts. 10 grains.—466 feet level north. There are four stopes in the back of this level, the average width of the lode being 1 foot 5 inches, giving an average assay of 1 ounce 19 dwts. 7 grains.—Taylor's shaft, 466 feet level north. The lode in the stope in the back of this level is 2 feet wide, assaying 1 ounce 21 grains.—466 feet level north on new chute. This end has been driven 20 feet, making a total distance driven of 140 feet 6 inches. The lode is 2 feet wide, assaying 6 dwts. 12 grains. The rise in the back of this level has been put up 9 feet, making a total height of 28 feet. The lode is 2 feet 6 inches wide, assaying 4 ounces.—780 feet level south on new chute. This end has been driven 2 feet, making a total distance driven of 17 feet 6 inches. The lode is 1 foot wide, assaying 5 dwts. 5 grains.—620 feet level north of crosscut. This end has been driven 3 feet 6 inches, making a total distance driven of 276 feet 6 inches; there are some stringers of quartz which assay 2 dwts. 14 grains. There are three stopes in the back of this level, the average width of the lode being 4 feet 4 inches, giving an average assay of 6 dwts. 12 grains.—Croker's shaft. This shaft has been sunk 21 feet 6 inches, making a total depth of 82 feet below the 466 feet level. The lode is 1 foot 6 inches wide, assaying 2 dwts. 10 grains.—466 feet level north. There are four stopes in the back of this level, the average width of the lode being 1 foot 5 inches, giving an average assay of 1 ounce 19 dwts. 7 grains.—Taylor's shaft, 466 feet level north. The lode in the stope in the back of this level is 2 feet wide, assaying 1 ounce 21 grains.—466 feet level north on new chute. This end has been driven 20 feet, making a total distance driven of 140 feet 6 inches. The lode is 2 feet wide, assaying 6 dwts. 12 grains. The rise in the back of this level has been put up 9 feet, making a total height of 28 feet. The lode is 2 feet 6

15 to 20 ounces silver per ton.—Engine shaft, No. 4 tunnel, No. 2 crosscut 75 feet level. Breaking of the rich ore has been continued. The vein maintains its width and richness. The stopes above this level have been holed through to this crosscut, proving that the rich vein is continuous from the 50 feet to the 75 feet level. Engine shaft, No. 4 tunnel south drive 50 feet level. The south drive has been advanced 4 feet, total 102 feet. There is no change to report.—Engine shaft, No. 4 tunnel north drive 50 feet. The north drive has been driven 3 feet, total 102 feet. The face is in quartzite, very hard, showing a little mineral.—No. 4 tunnel engine shaft, rise over old winze. The rise has been put up 6 feet, total 45 feet. There is no particular change to report.—No. 5 tunnel. The contractors have driven 6 feet for the week, total 844 feet. The country much tighter than it was.—Output for the week, 260 bags weighing 13 tons, containing 10,361 ounces silver, and 1 ton 15 cwt., 11 lbs. copper.

NINE REEFS.—Fortnightly report of Captain John Woolcock, mine agent, dated October 31: Vyvyan's shaft. Our mining work in this part of the property (for the present) is confined to the stoping of the back and bottom of the 220 feet level south of shaft. In the No. 2 stope north of winze the quartz leader varies from 6 to 10 inches wide, and a sample broken from this yesterday gave by assay 1 ounce 13 dwts. 3 grains of gold per ton; ground stopped for the month 8 fathoms 8 inches. The No. 3 stope to the north of the winze the quartz is 10 inches wide, and worth by assay 1 ounce 2 dwts. 8 grains of gold per ton; ground stopped for the month 6 fathoms 8 inches. The stope in bottom of the level 60 feet to the south of shaft the quartz is from 6 to 8 inches wide, and worth by assay 1 ounce 5 dwts. 8 grains of gold per ton; ground stopped for the fortnight 3 fathoms 8 inches. In all of the stopes we are obliged to blast away a good deal of the unproductive part of the lode with the leader, which will naturally bring down the value of the ore that will have to be treated.—South shaft. This shaft has been further deepened 8 feet 6 inches, total depth from surface 164 feet 6 inches, or 19 feet 6 inches below the 145 feet level. The lode is from $\frac{5}{2}$ to 6 feet wide, but at present, I regret to say, it is of a disordered nature, and the yield for gold is not so good. A sample broken yesterday gave by assay 3 dwts. 8 grains of gold per ton. Just now it is of a changeable character, and may improve in value at any blast. It is letting out water freely, and everything is being done to expedite the sinking, which in my opinion is our most important point. The 145 feet level north has been driven 28 feet 8 inches, total distance from shaft 112 feet 2 inches. The lode for the whole of this distance has been from 4 $\frac{1}{2}$ to 5 feet wide. At present it is 4 $\frac{1}{2}$ feet wide, carrying quartz 2 feet wide, with well-defined footwall. In the last 8 feet of this drivage the ore has been of low grade. A sample yesterday gave by assay 3 dwts. 4 grains of gold per ton, but as the level is extended further north, no doubt we shall get into another pay shoot of quartz.—Prospecting. McTaggart's lode, No. 1 shaft. The 106 feet level north has been driven 3 feet 6 inches, total from shaft 23 feet 9 inches. The lode is from 18 to 20 inches wide, very soft in its nature, and letting out water freely, which has greatly retarded the work during the past fortnight. After the water abates a little I purpose driving a crosscut west to see if there is any better part near in that direction. The lode in the end to-day is worth by assay 2 dwts. 4 grains of gold per ton. The level south from shaft has been driven 7 feet, total from shaft 29 feet 9 inches. The lode is regular and continuous, and carrying two well-defined walls, and yielding ore of low quality, but not of sufficient value at this depth to pay for working. A sample gave by assay yesterday 3 dwts. of gold per ton. The No. 5 shaft has been sunk 4 feet 2 inches, total from surface 85 feet 9 inches. The lode is 10 inches wide, composed of quartz veins, mixed with schist, and carrying a good deal of magnetic iron. The lode and ground is much harder than in the No. 1 shaft, and altogether different in its character. The hard ground now in the shaft appears to be pinching the lode. A sample from it yesterday gave by assay 3 dwts. 4 grains of gold per ton.—Surface. The masons are building the loadings for the larger winding engine at south shaft. There is nothing in the other surface work that calls for remark. The machinery throughout the mine is in good order. Our pitwork is also working well.—Health. The general health of the camp is good.

NUNDYDROOG.—Mr. Thomas Richards, October 31: Report for the fortnight ending October 31. Taylor's shaft has been sunk 6 feet, total depth 59 feet 6 inches below the 1080 feet level. The lode continues about 1 foot wide in each end of the shaft, and assays 8 dwts. 18 grains of gold per ton, but is still disturbed by the dyke in the central portion of the shaft. The 1080 south has been driven 20 feet 6 inches, total distance 158 feet, lode 6 inches wide, assaying 6 dwts. 6 grains. The 1080 north has been driven 26 feet, total distance 181 feet 6 inches, lode 6 inches wide, assaying 5 dwts. The winze below the 1000 south has been sunk 2 feet 6 inches, total depth 31 feet 6 inches, lode 3 inches wide, containing a trace of gold only. The 1000 north has been driven 20 feet 6 inches, total distance 714 feet. The lode now carries some strings of quartz, showing a trace of gold. A rise has been commenced in the back of this level at about 45 feet north from main shaft, and has been put up 14 feet; in it the lode is 5 feet wide and assays 2 ounces 10 dwts. gold per ton. The 920 north (No. 1) has been driven 6 feet 6 inches, total distance 151 feet, lode 6 inches wide, assaying 3 dwts. 18 grains. Cross cut west from the 920 (No. 1) north has been driven 15 feet 6 inches, total distance 33 feet. A few strings of quartz have been passed through. The 920 (No. 2) north has been driven 12 feet 6 inches, total distance from main shaft 71 feet, lode 1 foot wide, assaying 7 dwts. 12 grains. In the stope in the back of this level the lode is 4 feet wide, assaying 18 dwts. 18 grains. Cross cut east at the 840 north has been driven 1 foot 6 inches, total distance 99 feet; now suspended. There are two stopes in the back of 760 north in which the lode averages 3 feet 3 inches in width, and assays 1 ounce 5 dwts. 15 grains per ton. Cross cut east at the 680 north has been driven 12 feet 6 inches, total distance 157 feet; no change of importance. The 680 level has been driven north from the foregoing crosscut (on a lode passed through at about 53 feet from the commencement of the crosscut) 19 feet 6 inches. Lode 1 foot 6 inches, assaying 5 dwts. 15 grains. The end of this drivage is now 286 feet north from main shaft. The lode in the stope in the bottom of the 680 north is 2 feet 6 inches wide, assaying 12 dwts. 12 grains. The 600 north has been driven 14 feet, total distance 350 feet. Lode 1 foot wide, assaying 13 dwts. 18 grains. The intermediate drivage north above the 600 has been driven 4 feet, total distance 68 feet 6 inches. Lode 3 feet 6 inches wide, assaying 7 dwts. 12 grains. In the stope in the back of the 600 north the lode is 3 feet wide, assaying 11 dwts. 21 grains. There are three stopes in the bottom of the 520 north, in which the lode averages 3 feet in width and assays 8 dwts. 18 grains. In one stope in the back of the same level the lode is 2 feet wide, assaying 11 dwts. 6 grains. There is one stope in the bottom of the 370 north. Lode 3 feet wide, assaying 10 dwts. —Main shaft. Cutting down this shaft to its full size between the 920 and 1000 feet levels is proceeding satisfactorily.—Kennedy's shaft. Owing to an influx of water from the 520 north, this shaft has been flooded since the 20th inst. The water which rose sufficiently to impede operations in the 520 feet level has now been drained to about 20 feet below that depth, and if all goes well we hope soon to be able to resume the sinking of the shaft. The 520 south has been driven 15 feet, total distance 294 feet. Lode 2 feet wide, assaying 8 dwts. 18 grains. The rise in the back of this level against north shaft has been put up 15 feet 6 inches, total height 65 feet 6 inches. Lode 9 inches, assaying 11 dwts. 6 grains. The 520 north has been driven 16 feet, total distance 295 feet. Lode 3 feet wide, assaying 7 dwts. 12 grains. The 440 south has been driven 24 feet, total distance 617 feet. Lode 2 feet 6 inches wide, assaying 5 dwts. A stope has been commenced in the back of this level, where the lode is 4 feet 6 inches wide, assaying 1 ounce 2 dwts. 12 grains. In a stope in the back of the 440 north, the lode is 3 feet wide, assaying 1 ounce 13 dwts. 18 grains. The 370 south has been driven 19 feet, total distance 396 feet. Lode 3 feet wide, assaying 8 dwts. 8 grains. The 370 north has been driven 5 feet 6 inches, total distance 883 feet 6 inches. Lode 1 foot wide. No assay. A stope has been commenced in the bottom of this level with the object of

effecting a communication with the rise (put up some time ago) from the 440 north. In this stope the lode is 6 feet wide, and assays 1 ounce 7 dwts. 12 grains. There are three stopes in the back of this level in which the lode averages about 3 feet in width and 17 dwts. 2 grains in assay value. Crosscut west from the 370 north has been driven 13 feet, total distance 119 feet. No change. The stope in the back of the 300 south, the lode is 1 foot wide, assaying 1 ounce 5 dwts. In the 300 north No. 1 rise and stope the lode is 1 foot 3 inches wide, assaying 18 dwts. 18 grains. The 230 north has been driven 3 feet, total distance 195 feet. Lode 8 inches, assaying 1 ounce 3 dwts. 18 grains.—Old mill samples. Rough quartz through stonebreaker, 1 ounce 10 dwts.; smalls, 1 ounce 1 dwt.—New mill samples. Rough quartz through stonebreaker, 1 ounce; smalls, 1 ounce 2 dwts. 12 grains.

SUTHERLAND REEF.—Mine manager writes under date October 25: Winze in west drive has been sunk 7 feet, making a total of 54 feet; the reef here is about 2 feet in width, somewhat mixed with slate, but payable. I shall discontinue sinking this winze after this week as it will be deep enough to connect with the 210 feet level. The drive west is not sufficiently forward in the 210 level to make the connection. I have commenced driving in this level, and as soon as this is connected I shall continue sinking the winze to the 300 feet level. Winze in east 150 feet level has been sunk 9 feet, making 15 feet in all; the reef in this winze is about $\frac{1}{2}$ feet wide and very good in quality. Main shaft has been sunk 12 feet, making in all 285 feet. The reef in the shaft still continues good, about 3 $\frac{1}{2}$ feet wide, and occasionally we see rock showing a good deal of visible gold.

SOUTH EAST MYSORE.—Fortnightly report of Captain M. Scantlebury, mine agent, dated October 31: Beresford's shaft. This shaft has been sunk 9 feet 3 inches, which now makes a depth of 280 feet from surface. The lode is 6 feet wide, assaying 3 dwts. 22 grains of gold to the ton. 200 feet level north has been extended 16 feet, now 197 feet 6 inches from shaft. The lode is 4 feet wide, composed of quartz and arsenical pyrites, assaying 7 dwts. 3 grains of gold to the ton. Rise above 200 feet level south has been put up 10 feet, now 49 feet 6 inches above the level. The lode is 3 feet wide, and the average assay for the fortnight is 6 dwts. of gold to the ton.—Stope in back of 200 feet level south. The lode is 4 feet wide, and the average assay value is 8 dwts. of gold to the ton.—Stopes in back 200 feet level north. The lode is 4 feet wide; the assays for the past week have been low, but this will improve. New engine shaft has been sunk 8 feet by hand labour, which now makes a depth of 98 feet from surface.

SOUTH AUSTRALIAN PETROLEUM FIELDS.—The following is extracts from a letter received from the manager under date of October 24: I have received the bill of lading and the invoice of the goods that you sent to me from England. I was on my way home from Bo rongah when the goods arrived in Akjab, and as I wanted the tinplates at Kyanh Pyu at our shop and factory I did not unload them then, but kept them on the steamship, and had them landed at Kyanh Pyu. Mr. Haley has finished his fourth well; that rises above 200 feet level south has been put up 10 feet, now 49 feet 6 inches above the level. The lode is 3 feet wide, and the average assay for the fortnight is 6 dwts. of gold to the ton.—Stope in back of 200 feet level south. The lode is 4 feet wide, and the average assay value is 8 dwts. of gold to the ton.—Stopes in back 200 feet level north. The lode is 4 feet wide; the assays for the past week have been low, but this will improve. New engine shaft has been sunk 8 feet by hand labour, which now makes a depth of 98 feet from surface.

TRANSVAAL GOLD EXPLORATION AND LAND.—General summary of operations for the month of September: Theta. Drivage 263 feet, deposit averaged 39 inches thick, ore extracted 795 tons, average assay value 2 ounces 16 dwts. per ton; a large amount of overburden was taken off by stripping.—Beta. Drivage 142 feet, deposit averaged 8 inches thick, ore extracted 190 tons, average assay value 2 ounces 8 dwts. per ton.—Iota. Drivage 94 feet, deposit averaged 23 inches thick, ore extracted 122 tons, assay value 18 dwts. per ton.—Nu. Drivage 64 feet, deposit averaged 18 inches thick, ore extracted 55 tons, assay value 5 ounces 11 dwts. per ton.—Chi. Drivage 591 feet, deposit averaged 21 $\frac{1}{2}$ inches thick, ore extracted 231 tons, assay value 1 ounce 12 dwts. per ton. Prospecting still continued at Sigma' and Tau; 1156 feet of trenches were cut and the deposit proved in several places, it varied considerably both in value and thickness, total ore mined 1404 tons, average assay value 2 ounces 4 dwts. Produce from battery 393 ounces, from pans 1158 ounces, from cyanide process 799 ounces, total for month of September 2340 ounces.

ALBION GOLD.—The manager writes under date October 25 with reference to the enlargement of the Albion shaft:—We have sunk the shaft 17 feet on the reef which measures 2 feet between walls. The reef is composed of white and blue quartz, with a thin layer of soft cement rock running between 3 inches wide. I have taken samples and will make fire assays when pumping has begun. I have made pannings from the reef which will run fairly 1 ounce 10 dwts. to the ton. One panning I had must have gone 3 ounces, as the gold showed all round the pan. I have also got two pieces of quartz with visible gold in. I consider the reef to be rich, and is said to get better as we go deeper.

DON PEDRO.—Maguiné Mine half-monthly report, Oct. 15: Mine drainage. The sinking of the engine end of the shaft has been satisfactory. The ground has been somewhat hard, but on the whole favourable. We have for the month sunk 6 feet and fixed a set, making 4 fathoms under the 60, and expect to accomplish another 6 feet before the close of the month.—New adit. This has been carried on very rapidly, and we hope to communicate with the incline shaft in the course of four or five weeks.—Rise from the 60 north. This has been carried on towards the 50 with great care in a splendid quality of lode. Very rough pieces of gold are found in the general work, also boxwork samples are obtained, but the ground being so watery, boxwork cannot be extracted. Nevertheless, we are getting good results in the reduction.—50 north. From this up to date we have risen west on the line of gold 8 feet. The line is rich and well defined. To date over 1000 octavas of gold have been extracted from this place alone during the present month.—Morrode Santa Anna. Since my last we have cleared the deep adit, and I have thoroughly examined the level throughout. From the entrance in, for about the distance of 15 fathoms, the level is timbered with canes sets and laths complete, and although these sets have been fixed about 25 years they are still as good as ever, therefore I may add that the level is in splendid working order. I have examined the lode at this horizon and find it of the same quality as represented to me by an old Brazilian miner. Visible gold appears throughout the lode.

GREAT SOUTHERN TIN AND GOLD FIELDS.—Toorn, Oct. 13: The mining manager reports that during the past fortnight there has been driven in tunnel 16 feet 6 inches, making a total length of tunnel 53 feet 6 inches. Rock continues favourable for

driving operations. Total length from line of race open cutting and tunnel 95 feet.

BRITISH SOUTH AFRICA COMPANY.—The following has been communicated to Reuter's agency by the British South Africa Company:—Gwanda district. The mining commissioner reports that he has been across the Umsingwani River, 40 miles east of Gwanda, and estimated length of gold belt at 170 miles, so far as at present explored. The river is crossed by the north reef, belonging to the Heany Syndicate, consisting of 60 claims, along the course of which very extensive workings have been made by the ancients. The ore pans well, and is very heavily mineralised. The property has great possibilities, being in an excellent position for working, as regards wood and water. Three miles above the river is the Nubian Reef, belonging to another set of prospectors, consisting of 30 claims, apparently fissure vein. The ore carries fairly good free gold, and is very heavily mineralised, carrying a large amount of iron and copper, pyrites and galena. The property is well situated for working. Five miles to the north-west is the Ceylon Reef belonging to the Heany Syndicate, on which are extensive open workings, but it is not possible to get down until they are cleared out. Many hundreds of other claims have been pegged out.—Umtali district. The mining commissioner at Umtali reports a 6 feet reef struck in the Umtali Valley, north of Panhalanga line. Pans well, and shows visible, presumably an extension of the Reven reef.—Alluvial. A wash deposit has been struck in a drive on the Berlin at 50 feet level, 2 dwts. of coarse gold obtained from four pannings of about 20 lbs. each, heaviest pieces being 18 and 14 grains. Strike considered most promising; they say it may widen out right across the valley. Drifting going on very satisfactorily on Ressende; reef pans as well as ever, working night and day on Jefferey's ground, on Panhalanga: drives now in 74, 75, and 139 feet respectively.—Umfati district. Mining commissioner reports as follows:—Prince reef, Umswesa, at 40 feet, 7 feet 6 inches wide solid carrying fair gold; Danvu reef, at Mombi, recently purchased by Clark, 2 feet wide, at 60 feet, very rich, now being drifted upon, and a second shaft is being sunk; pumping gear to be erected at once on Inez; reef as good as ever at second level.—Concession Hill reef now being laid out, and three adits are being put in, the third to be 400 feet in length to cut reef at 90 feet; no water met with; 20 tons of quartz from Concession Hill Mine waiting to be crushed. Labour scarce in this district.

FRONTINO AND BOLIVIA.—La Salada, October 6; Silencio. The sinking has been delayed on account of the breakdowns on the Pocuné watercourse, but it will be resumed on the 8th inst. The driving of the No. 6 level south is still in rich ground, and indications point to a shoot of rich ore at this point, which is permanent for some length, and to all appearances in depth. The north drivage in this level is in a lode of much the same character as when last reported on (broken), nor is there any sign of change as the drivage advances. The No. 5 levels are still in poor ground, but the south drivage seems to be advancing into mineralised ground, having some similarity in character and direction to the level immediately above it. The No. 4 level north and south is unchanged, carrying a quantity of calcite mixed with the quartz of the lode, a characteristic unusual in the vein, and it is not known whether it is unfavourable or otherwise. There is nothing new to note in the drivage of the Bolivia cross cut. No. 3 level south is also unchanged. Stoops throughout the mine are yielding a moderate grade of ore, much as last reported. The work of preparations underground are going on fairly well for the skip roads in south engine shaft, as is also the retimbering and squaring of the sides of shaft. La Salada. The sinking of the shaft, and driving of the No. 2 crosscut, have been at a standstill for the past fortnight, owing also to the damages on the Pocuné watercourse, and at the time of writing the water is still in the No. 1 crosscut. There is no hope, therefore, that the sinking can be resumed yet for a day or two, even if everything continues well on the watercourse. The hoist is also helping the pumps, but there appears to be an unusual influx of surface water, which easily finds its way through the upper workings, and is an entrant to the usual amount of mine water found in ordinary seasons. A crosscut for the transportation of ore from new shaft to new mill has been finished; this will also be used for the passage of water to the mill, after its use for pumping or other machinery.—Cordoba. The drivage of the No. 8 crosscut progresses very favourably, the use of dynamite has facilitated the drivage considerably, and it has gained a decided preference to tonite, wherever used. In No. 7 level north a cross course was met with, and having been cut through a lode of very moderate grade ore has been met with. The stoops continue to produce fairly well, yielding in the mill much the same as last month in value and quantity.—Tigrito. The No. 6 level west continues in good mineral, and the indications mentioned in my last letter have proved their correctness, a lode well defined, about 2 feet thick, having developed itself. The winze now being sunk in the bottom of No. 5 level is approaching communication with the No. 6 level, and at once afterwards stowing will be commenced. There is sufficient height of stowing ground to supply the demand of the mill, although the lode is small. There is nothing new east to mention.—Marmajito. In the drivage of the No. 2 crosscut the branches of mineral have been intersected each about 9 inches thick, and apparently are belonging to one body of mineral. To ascertain if this presumption is correct, and as these branches are rich in pyritous mineral, a level has been started on them, which, in all probability, will be proved in a few feet of drivage. The lode in the west level remains much the same in character, but has increased in size slightly. Its thickness is about 2 feet, and about 9 inches of this is almost entirely pyrite. The rise from this level to surface is continued as well as circumstances permit.—Marmajon. The work of further crosscutting has been re-suscitated, with the hope that other mineral may be met with, the feature being purely speculative. The branch reported in previous letters which the crosscut intersected has become very disordered, and for the present the work on it is suspended, but if nothing should be met with in the crosscut, this lode will probably be further opened up.—George W. Eustice.

NAMAQUA.—Abstract of superintendent's report for September: Tweenfontein Mine. 125 fathom level. Preparations are now being made for driving east on the course of the lode.—115 fathom level east. The lode here now exceeds the width of the driving, and is mineralised throughout. Worth 3 tons of ore per fathom.—115 fathom level east, No. 29 winze. There is no change at this point. Sinking has been suspended for the present.—115 fathom level west. This is now connected with the No. 27 winze. The upper part of the driving is in fairly good mineralised ground, and looks promising for further improvement.—105 fathom level west. The ground here is a little more spotted with copper than it has been, but is still of no value.—95 fathom level west. This level continues to open up stowing ground of fairly good value for about 7 feet in width, and is worth 6 tons of ore per fathom.—95 fathom level west, No. 28 winze. This winze has farther fallen off in value, and is yielding 2 tons of ore per fathom of fairly good quality.—85 fathom level west. There has been no change here since last reported upon. Worth 3 tons of ore per fathom.—New shaft. 25 fathom level west. The part of the lode driven upon having become very much broken up and narrow, driving was suspended, and the men put to drive south-west at a few fathoms behind the end, where a division of the lode seems to have occurred. Worth 3 tons of ore per fathom, —25 fathom level south-west. The part of the lode carried contains more blue ore and chlorite than that in the west driving, and thus far the development has been very satisfactory, Worth 8 tons of ore per fathom.—25 fathom level east, No. 1 winze. The ground here continues to open up well. Worth 8 tons of ore per fathom. Stoops. 105 fathom level west (back of), and 95 fathom level west (bottom of). Both these stoops continue to yield well, and are respectively worth 10 tons and 8 tons of ore per fathom.—25 fathom level west (back and side of). New shaft. This stope is still yielding 10 tons of ore per fathom.—Shipping. The Glanraon left Port Nolloth for Swansea on October 26, with about 720 tons of ore.—Output for October. 450 tons of ore of 30 per cent.

D'ARCY ESTATES.—Report dated October 18. Main shaft sunk 11 feet, total depth 136 feet. No change. Prospecting shaft on Portion 3 timbered and sinking being pushed ahead.

ELKHORN.—Copy of Mr. C. A. Molson's monthly report for October:—Mine. Ore breaking department: 550 feet level south. The vein is 3 feet 6 inches wide, and assays 44 ounces. Connection has been made with the old workings.—650 feet level south, No. 2 stope. The vein in the bottom is 30 inches wide, and assays 45 ounces. This ground will be stope from the 750 feet footwall crosscut.—750 feet level north, crosscut raise stope. The vein is 3 feet wide, and the value 38 ounces. The bottom of the stope shows 2 feet of lead ore, assaying 140 ounces of silver and 15 per cent. lead. It is bony in character.—Inside stope. The vein is 15 inches wide, and the value 45 ounces. The ore in sight here is about worked out.—850 feet level north. The vein is 7 feet wide, and assays 40 ounces. The ore is all of the dry class.—950 feet level north. The vein is 8 feet wide, and the value 47 ounces. Very little shipping ore is showing in the vein.—North end. The vein is 18 inches wide, and the value 40 ounces.—1050 feet level south. Very little work has been done here. The value of the ore is 28 ounces for a width of 2 feet.—North of the shaft. The vein is 2 feet wide, and the value 36 ounces. 1250 feet level south. Some lead ore has been broken at the north end of the stope. The width of the streak is 16 inches, and the value 110 ounces and 12 per cent. lead.—1350 feet level north. A band of dry ore, 18 inches wide and assaying 42 ounces, is being sunk in from the bottom of the 1250 feet level.—South of the shaft, main stope, south end. The vein is 18 feet wide, and assays 34 ounces. The improvement in the grade is due to higher grade sulphide occurring in the hanging portion.—Centre stope. We are working on the 15 inch band of shipping ore which is making into the footwall. The value is 180 ounces and 16 per cent. lead.—1450 feet level north. The vein is 3 feet wide, and the value 38 ounces. Some bunches of oxidised lead ore are making at the north end of the stope.—South of the shaft, back stope. The vein is 6 feet wide, and the value 60 ounces and 4 per cent. lead. A raise is being put through the ore to connect with the bottom of the 1350 feet south footwall crosscut and to drain the vein.—Centre stope, foot of main raise. The shipping ore occurs in irregular bunches in the footwall, which assay 90 ounces and 10 per cent. lead. The footwall streak is silicious ore, assaying 40 ounces for a width of 2 feet.—South end stope. No work has been done here during the month.—1550 feet level south, back stope. The vein is 3 feet wide, and the value 28 ounces. A small amount of shipping ore is broken from the south end of the stope.—1650 feet level south, footwall crosscut stope. The vein is 3 feet wide, and assays 42 ounces and 6 per cent. lead. The chute keeps very irregular.—Inside stope. Connection has been made here with the 1550 feet level, the last 15 feet of the back being in waste. This chute of ore is about stope out.—Prospecting department. 750 feet level south, footwall crosscut. Previously reported, 14 feet; advanced in October, 11 feet; total length November 1, 25 feet. The downward extension of the ore in the 650 feet south No. 2 stope was cut at this point. Its value is 54 ounces, and its width, 30 inches.—Shaft. Previously reported, 1365; sunk in October, 72.5; total depth below, 1650. 209. We have about a week's work to complete the sump and timber the station. In general character the ground shows but little change. The hanging is not quite as strong as usual, and we have timbered the lift to prevent the slabbing off of the wall.—Amount and source of ore hoisted. 650 level 4 cars, 750 level 137 cars, 850 level 325 cars, 950 level 334 cars, 1050 level 143 cars, 1250 level 214 cars, 1350 level 429 cars, 1450 level 391 cars, 1550 level 42 cars, 1650 level 155 cars. Total cars hoisted 2174. Number of tons 1276.—Milling department. The mill ran steadily during the month, the only delays on the pans being for the regular replacement of castings. The batteries were hung up on the last of the month preparatory to the November shut down to put in a new roaster cylinder.—Table of work performed in October. Ore on hand October 1, 47 tons; raised from the mine, 1276 tons; less smelting ore, 116 tons; waste sorted out, 106 tons, 222 tons, 1053 tons; add for salt, 157 tons; dry ore panned, 1210 tons; pulp in the mill, 17 tons; rough ore in stock 31 tons; total 1258 tons—1251 tons.—Surface department. Everything is proceeding in its usual order here. A series of quicksilver traps have been put in the mill tailrace. The coming elections for Congress and the location of the State capital are absorbing the interest of the whole people, to the exclusion of all other business. The season is open, with clear, cool weather.

SHEBA.—The following report has been received from the general manager for the month of September: Mine. Above No. 5 level. No work has been done above this level further than to send ore from the old quarry dump to the mill.—No. 5 level. This level has been extended 34 feet west during the month, and a cross cut driven north 7 feet midway between Nos. 17 and 21 winzes.—No. 6 level. Winze No. 31 has been sunk 27 feet and connected with No. 7 level. This will greatly assist us in underhand stope from Nos. 6 to 7 levels. No. 7 level has been extended west 26 feet. No. 3 north cross cut 3 feet 6 inches. No. 8 level has been extended 8 feet west. No. 30 winze sunk 27 feet 6 inches and connected with No. 9 level. We have now two lines of winzes down to No. 9 level at 100 feet apart, giving us good ventilation. No. 9 level driven west 19 feet. No. 3 north cross cut driven 16 feet 6 inches.—Low Level Tunnel (Main Adit). During the month 77 feet driven. This is now in 1213 feet. Less progress was made than last month, as we are now in harder ground, and our rock drills are almost worn out. Four new drills have been purchased, so as to push the tunnel on as quickly as possible. We shall shortly start cross cutting to the reef.—Annie's Fortune. The north drive has been extended 39 feet. The shaft on this block has been timbered, and sinking will be recommenced.—Elwin Bray. No. 2 north cross cut driven 12 feet. West drive extended 31 feet 6 inches.—Quintals. On this block we have sunk 16 feet 6 inches vertically from the surface to connect with the Good Hope winze, which we shall restart sinking as soon as connection with it is made, and continue it down to the main adit.—Surface at Mine. All works at the mine are running steadily and satisfactorily. Two new boilers are being placed to assist in furnishing air for the rock drills.—New Work. All work in connection with the new battery is progressing fairly, but as I shall so shortly make my yearly report, I will not go into details here.

WENTWORTH EXTENSION.—Report dated October 12. Main shaft, west crosscut, 150 feet level advanced 4 feet. Total length 237 feet. No change. South-east drive 100 feet from main shaft in north-east crosscut advanced 15 feet, total length 33 feet, following calcite veins. Crosscut made from main drive from alluvial shaft eastward 32 feet. Wash 18 inches wide, prospecting well. Bulk sample gives 5 dwt. per ton.

THE INSTITUTION OF JUNIOR ENGINEERS.—Last Friday evening the inaugural meeting of the 14th session of this Institution was held at the Westminster Palace Hotel. The chair was taken by the retiring president, Mr. J. Wolfe Barry, C.B. It was announced that since the last ordinary meeting, 33 new members had been elected, which brings the total membership at the present time to 386. The Institution's premium of the past session was handed to Mr. G. Frank Barr, of Brighton, for his paper on "Boilers for Locomotive Engines." On the proposition of Mr. H. J. Young, Chairman, seconded by Mr. R. W. Newman, vice-Chairman, a vote of thanks for his past services was passed to the retiring president. Mr. Barry having acknowledged it, then introduced to the chair the president-elect, Mr. Alexander Siemens, who proceeded to deliver his presidential address. It dealt principally with the question of inventions called for in the progress of engineering science, and the way in which they had been introduced. Some features of the patent laws of this and other countries were also discussed. It was shown that a thorough acquaintance with both natural laws and existing practice was highly essential to successful invention. Mr. W. J. Tennant proposed, and Mr. A. H. Dykes seconded the vote of thanks which was passed to Mr. Siemens for his address. The members have recently visited the gigantic wheel works at Earl's Court and the Enfield Small Arms Factory.

PROVINCIAL SHARE MARKETS.

THE CORNISH MINE SHARE MARKET.

MR. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of November 22 (4 o'clock) as follows:—We have had a quiet market this week, with very little disposition to do business amongst dealers. Practically there is nothing doing to-day. The following are quotations:—Blue Mills, $\frac{1}{2}$ to $\frac{1}{2}$; Carn Brea, $\frac{1}{2}$ to $\frac{1}{2}$; Dolcoath, 51 to 53; East Pool, 5 to $\frac{1}{2}$; Killifretch, $\frac{1}{2}$ to $\frac{1}{2}$; South Crofty, $\frac{1}{2}$ to $\frac{1}{2}$; South Wheal Frances, $\frac{1}{2}$ to $\frac{1}{2}$; Tincroft, $\frac{1}{2}$ to 8; West Frances, $\frac{1}{2}$ to $\frac{1}{2}$; West Kitty, $\frac{1}{2}$ to $\frac{1}{2}$; Wheal Agar, $\frac{1}{2}$ to $\frac{1}{2}$; Wheal Bassett, $\frac{1}{2}$ to 1; Wheal Grenville, $\frac{1}{2}$ to $\frac{1}{2}$; Wheal Kitty (St. Agnes), 1s. to 3s.; Polberro, 1 to $\frac{1}{2}$.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (November 22) as follows:—The mining market continues thoroughly depressed on the further reduction of the tin standard, both for cash and forward delivery, with almost an absence of business. Closing prices:—Carn Brea, 5 to 5½; Devon Consols, 1½ to 1½; Dolcoath, 51 to 51½; East Pool, 5 to 5½; Killifretch, 2 to 2½; Levant, 5 to 5½; South Crofty, $\frac{1}{2}$ to $\frac{1}{2}$; South Frances, $\frac{1}{2}$ to $\frac{1}{2}$; Tincroft, $\frac{1}{2}$ to 8; West Frances, $\frac{1}{2}$ to $\frac{1}{2}$ c.p. West Kitty, 5 to 5½; Wheal Agar, $\frac{1}{2}$ to $\frac{1}{2}$; Wheal Bassett, 1 to 1½; Wheal Grenville, 13½ to 13½; Wheal Kitty (St. Agnes), 1s. to 3s.; Polberro, 1 to $\frac{1}{2}$.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers, and Mining Share Dealers, Redruth, write under date of Thursday, November 22:—The market has been very dull this week, but prices have not materially altered. At South Crofty to day a call of 4s. 6d. was made, and a good report presented. Quotations herewith:—Blue Hills, $\frac{1}{2}$ to $\frac{1}{2}$; Carn Brea, 5 to 5½; Dolcoath, 51 to 53; East Pool, 4½ to 5½; Killifretch, 4s. to 4½; Polberro, $\frac{1}{2}$ to 1½; South Condor, $\frac{1}{2}$ to $\frac{1}{2}$; South Crofty, $\frac{1}{2}$ to $\frac{1}{2}$; South Frances, $\frac{1}{2}$ to $\frac{1}{2}$; Tincroft, 7½ to 7½; West Frances, $\frac{1}{2}$ to $\frac{1}{2}$; West Kitty, 5½ to 5½; Wheal Agar, $\frac{1}{2}$ to $\frac{1}{2}$; Wheal Bassett, 4 to 1; Wheal Grenville, 13 to 13½; Wheal Kitty $\frac{1}{2}$ to $\frac{1}{2}$. Tin 63½.

MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write November 22, 1894 (noon): Though the gilt-edged securities show numerous advances in all departments, railway markets are irregular, but with declines in large majority. These declines are chiefly to be found in Home rails and Yankees, as in Canadians Grand Trunk issues are better, though Pacifics are distinctly lower. Mexican rails, too, quote a little higher all round. Whilst these are the results of the changes on the week, there having been in some cases fluctuations, in the meantime a daily resume will doubtless be the best method to adopt for our report. On Friday last Home rails were very quiet, and what variations in quotations were marked were about evenly divided between higher and lower. Canadians produced no business here, but prices eased a little. Mexicans lifeless, and no alterations in the prices. Americans furnished about all the business going on, but it was on a somewhat easing market throughout this department. Saturday saw a little demand for the "heavy" lines in Home rails, but otherwise there was nothing worth reporting, save, perhaps, for a small rise in Mexicans. On Monday Home rails turned easier, Brighton A and Dover A being to the front in the declines. A single exception to the rule therein was provided by London and North Western, which improved nearly 1 per cent. Americans lower again, there being no demand to help figures up at all. Nothing, or next to nothing, doing in Canadians and Mexicans. On Tuesday Home rails were still easier again, the ostensible cause being fears of poor traffics. The other departments of the railway market, however, showed a little strength, but the gains marked on the day were not of much amount, though fairly general. Yesterday Brighton A and Dover A showed some improvement, but otherwise Home rails were further down, and this notwithstanding some very fair traffic returns. In Canadians, Pacifics were lower again, but Grand Trunk issues were slightly on the upward side. Mexicans somewhat easier. Americans, without strength from New York, still kept fairly well up to previous day's prices. This morning Home rails open just about last night's close, the few alterations being fractional, and at the same time contradictory. Americans open lower all round, Milwaukees showing the chief decline from yesterday. Canadians again lower as regards Pacifics, but Grand Trunk issues unaltered. Mexicans also unchanged. Consols are 1-16 ap on the week. Colonial Government bonds, &c., and home corporation stocks show a goodly array of altered quotations, all of which are on the side favourable to holders and against buyers. Foreigners are very contradictory.—Higher: Brazilian 4 per Cent. 1, ditto 4½ per Cent. 1. Egyptian Unified $\frac{1}{2}$, Russian 4 per Cent. $\frac{1}{2}$, Mexican 6 per Cent. $\frac{1}{2}$ to 1, and Portuguese 3 per Cent. $\frac{1}{2}$.—Lower: Argentine 6 per Cent. 1, ditto 5 per Cent. $\frac{1}{2}$ to 1½, Turkish D $\frac{1}{2}$, Italian Rentes $\frac{1}{2}$, and Uruguay 3½ per Cent. $\frac{1}{2}$. Business in the shares of the miscellaneous classes of companies has been fairly good, and prices, though showing in some departments some irregularity, are, where changed, on the better side in the majority of instances.

BANKS, without many transactions, show a fair number of variations in current prices. They are as follows:—Higher: Bank of Liverpool $\frac{1}{2}$, Salfords $\frac{1}{2}$ to 3-16, Adelphi $\frac{1}{2}$, Consolidated 1-16, and Mercantile of Lancashire 1-16.—Lower: Imperial Ottoman $\frac{1}{2}$, Lancashire and Yorkshire $\frac{1}{2}$, Manchester and County $\frac{1}{2}$. INSURANCE.—Transactions very few.—Higher: Commercial Union $\frac{1}{2}$, London and Lancashire $\frac{1}{2}$, Thames and Mersey 10 to $\frac{1}{2}$, Lancashire 1-16, and Maritime 1-16.—Lower: Royal $\frac{1}{2}$, Sea $\frac{1}{2}$, and Palestine 1-16.

COAL, IRON, &c., quite neglected. Ebbw Vale are $\frac{1}{2}$ higher, b Bolckow's (fully paid) are $\frac{1}{2}$, ditto (£12 paid) 1-16, and Earle $\frac{1}{2}$ lower.

MINES.—Only Chartered moving here.—Higher: Darien A 3-16, Consolidated Gold Fields $\frac{1}{2}$, Mysore 1-16.—Lower: Oregum Preference $\frac{1}{2}$, ditto Ordinary 1-16, and Chartered 6.

TELEGRAPHS, &c.—A few dealings in National Telephone Ordinary all reported here.—Higher: Anglo-Preference 2, ditto Deferred 4, ditto Ordinary 1½ to 2½, Direct United States Cable $\frac{1}{2}$, Western and Brazil $\frac{1}{2}$, and Eastern $\frac{1}{2}$. No dealings.

BREWRIES.—Locals quiet.—Higher: Guinness's 5, Clarkson's $\frac{1}{2}$, and Hardy's $\frac{1}{2}$.—Lower: Allsoppe 1½ to 2½.

MISCELLANEOUS.—Salt Unions have been brisk, and quote 5-16 lower. United Alkali's have been done a few times, and they also are distinctly down on the ordinary issue. Blackpool Pier are a further 5 in advance. Brunner ordinary $\frac{1}{2}$, Suez Canal 1, and a few others fractionally higher. Beyond those named the declines are few and small. Ship Canals have shown slight fluctuation, but are now just about quotations of a week ago. A fair number of dealings are reported therein, chiefly, however, in the ordinary.

LATER (4 P.M.)—Home rails, though dull, are generally better in tone where not actually improved in price. Americans, though opening lower, kept well maintained in the absence of any selling pressure. Mexicans and Canadians nothing doing. Ship Canals improved a bit during the day, but eased off again towards close, leaving only the ordinary really altered, and these the two higher on balance.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (November 22), writes:—During the past week the markets, except for South Africans, have been inactive. Trade reports are not unfavourable, but the metal markets continue dull.

In shares of copper concerns there has been little business doing. Tharsis and Tinto are both firm. It is probable the arrival of the representatives of American producers to negotiate for a restriction of output may direct more attention to this market.

In shares of gold and silver mines a large business continues to be done. South Africans have in some cases relapsed on realisations, but the improved milling and other developments which will take place in the Rand early in 1895 do not appear to leave much room for a fall. Chartered declined from 42s. to 40s., but are again improving on prospect of a favourable report and meeting. Orion higher on a bonus of 15 per cent. being declared, and on the prospects of amalgamation with another mine, which will increase the life of the joint concern. Lisbon firm on rumoured improvement in the management. West Australian are not attracting so much attention, probably as it is the dry season there, but the London-derry Mine, with a capital of £700,000, appears to have been subscribed for. Montana have declined from 13s. 6d. to 12s. 9d. In Indian mines Mysore are firmer, as the cyanide process is now started. Broken Hill declined to 38s., recovered to 43s. 6d., and are now 40s. It is stated a means has been found of treating ore more successfully, but the tendency of the shares will likely be guided by the dividend announcement now due. Big Golden Quarry, Sunburst, and Kanza Exploration shares wanted. African Recovery are at 25s. 3d.; Alexandra Estate, 5s. 3d.; African Land, 6s. 3d.; Bayley's Reward, 6s. 6d.; Buffelsdoorn, 3s. 6d.; Balkin Land, 3s. 9d.; Champ d'Or Deep, 19s. 3d.; Carrington, 2s. 9d.; Crown Reef, 9s.; Consolidated Gold Fields of South Africa, 6s. 6d.; Cassel, 13s. 6d.; Consolidated Deep, 65s.; Day Dawn P.C., 6s. 6d.; East Rand, 38s. 9d.; Geldenhuys Deep, 5s.; Great Boulder (fully paid), 9s. 3d.; Glencairn, 62s. 6d.; Heriot, 7s.; Jubilee, 7s.; Johannesburg Consolidated Investment, 42s. 6d.; Jumpera, 5s.; Klerksdorp, 3s.; Knights, 55s.; London and Orange Free State, 85s.; Langlaagte Royal, 80s.; Mysore Wynad, 7s.; Meyer and Charlton, 6s. 9d.; Mallins, 17s.; May, 35s. 6d.; New Crosses, 3s. 6d.; Nigel Deep, 25s.; New Primrose, 5s.; Ophir, 2s.; Otto's Kopje, 3s. 9d.; Pigg's Peak, 4s. 6d.; Paarl Central, 23s. 6d.; South African Trust and Finance, 8s. 6d.; Sheba, 28s. 3d.; St. John Del Rey, 27s. 6d.; Sutherland Reef, 18s. 3d.; Van Ryn, 76s. 3d.; West Argentine, 1s. 1d.; Victoria and Altamira, 1s. 3d.; West Australian Exploration and Finance, 1s. 3d. prem.; and Wolhuter, 7s. 3d.

In shares of miscellaneous companies prices are steady. Broxburn Oil are at 8½; Johannesburg Water, 26s.; Nobel's Explosives, 14s.

EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of November 22:—Business in Home Railways during the past week has been almost entirely confined to Caledonian Deferred and North British stocks, both of which are lower. The former has declined from 39½ to 39, and the latter from 37 5-16 to 36½. Brighton Deferred has gone from 157½ to 155½. Debenture, and other high class stocks, have again come into demand, and in some cases an advance of 1 to 2 per cent. have taken place. Bank shares are in request at enhanced prices. British Linen have improved from 38s to 390, Clydesdale from 19½ to 19 11-16, Commercial from 68½ to 68½. National from 34½ to 34½, North of Scotland from £7 10s. 6d. to 7½. Royal from 227 to 228, Union from 21½ to 21½. Insurance shares quiet. Commercial Union have improved from 34½ to 35, London and Lancashire from 16½ to 16½. North British and Mercantile have declined from 37½ to 37, Royal from 5½ to 50s. Steel Company shares have improved from 35s. to 42s. A fair business has been done in mining shares. Linlithgow oil have risen from 6s. to 10s. Other oils unchanged. Edinburgh Tramways 1s. 6d. lower at 88s. 6d. Union Steamship of New Zealand 1s. 8d. lower at 7½.

COAL-WASHING IN THEORY AND PRACTICE.—At a recent meeting of the Yorkshire College Engineering Society, a paper upon "The Theory and Practice of Coal-Washing" was read by Mr. J. Clark Jefferson, Wh.Sc. The lecturer commenced by pointing out that the removal of clay, slate, and other earthy matters from coal increased the efficiency of the fuel, and that the money thrown away by the consumer in paying coal price for the ash in one ton of coal unwashed is more than the cost of washing that quantity. It therefore follows that clean coal is actually cheaper at the higher price necessary to cover the cost of washing it. The description of the different classes of coal-washing machines which followed showed that all washing operations differ only in the manner in which the water is employed. The different modes of washing are—the fall of the material in still water, separation under the influence of an upward and a downward current, separation by means of a horizontal current and by means of an inclined bed, leading to a sliding or a rolling transport of the material; lastly, by the influence of a rotating fluid. From theoretical considerations, it was pointed out that in jigging machines the rise of the water was advantageous, but a rapid fall was distinctly disadvantageous; also that rotary separators were the worst of all machines for washing coal. It was also shown that if the operation was effected under the influence of a rapidly recurring upward movement of the fuel through stationary water, so that each interval of time was under one-fifth of a second, then the clay would separate from the coal; also the separation was shown to be independent of the size of the particles when screened for the market.

SOUTH AFRICAN EXHIBITION, CRYSTAL PALACE, 1895.

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The DUKE of FIFE, K.T.

VICE-PRESIDENTS:

The DUKE of ABERCORN, K.G.

Sir HENRY B. LOCH, G.C.B.

Lord ROTHSCHILD.

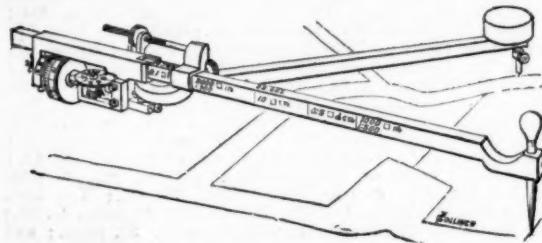
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MECHANICAL ENGINEERING: MACHINERY, MINING and RAILWAY PLANT, &c.

Illustrated Descriptions of New and Standard Mechanical Appliances, Accessories and Processes, adapted to Mining, Metallurgical, Railway, Engineering and other Industrial Purposes.

A NEW COMPENSATING PLANIMETER.

The improved patent Compensating Planimeter, of which we are able to give a couple of illustrations, is the joint invention of the patentees, Mr. W. F. Stanley, of Great Turnstile, and Dr. A. Amsler, son of the inventor of the well-known instrument bearing his name. The idea consists in making the instrument adjustable to the shrunk scale of a printed ordinance map, or other plan which has shrunk in mounting, by providing means for making a correction equal to the difference between the standard and the shrunk scale of the map. The four following scales have been worked out and corresponding planimeters are made: 1/2500, 1/500, 6 inches, or 5 feet to the mile, and 12 inches, or 10 feet to the mile.



The correction for shrinkage is made by means of a short scale upon the top of the planimeter divided to hundredths which reads with a vernier to thousandths of the length of the tracing arm. The percentage of shrinkage is found by measuring the scale of the map by a true scale, and setting off double the percentage difference upon the vernier scale from zero. The planimeter adjusted in this way measures the area on the shrunk map, if care be taken in following the outline of the plan or map to be computed, with the tracing point.



One illustration shows the new planimeter as identical with the usual form with movable arm. The second shows the top face of the sliding bar with two short graduations and two verniers, each corresponding to one mark on the side faces of the bar. The use of the planimeter on shrunk plans is very simple. Suppose, for example, a 6-inches to the mile plan. Measure on the shrunk plan by means of a true scale the length of 100 divisions of the scale printed at the bottom of the plan. Say, for example, that length may be 98·6 on the true scale, so that the deficiency is 1·4; multiply the deficiency by $2 - 2 \times 1\cdot4 = 2\cdot8$; then adjust the zero point of the vernier to 2·8 of the graduation on the top of the bar. The reading of the roller multiplied by 200 will then be the true area.

If a net of squares is printed on the map and it has shrunk at different rates in the horizontal and vertical directions—say, for example, at such a rate that the deficiency in one direction is 1·4 and in the other direction 1·6—then add the two deficiencies $1\cdot4 + 1\cdot6 = 3\cdot0$ and adjust the vernier to 3·0 of the graduations on the top of the bar.

JOINT-STOCK COMPANIES.

NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

New Guayabillas Mining and Reduction Company (Limited).—Registered by Taylor and Co., 28, Great James Street, W.C., with a capital of £31,000 in £1 shares. Object, to enter into an agreement with the New Guayabillas (Limited) for the acquisition of the business of that concern, and to carry on the business of a mining, smelting, refining, exploring, and prospecting company in the Republic of Honduras or elsewhere. The first directors, to be not less than three nor more than five, are A. Morris, A. H. Morris, and W. Pilcher. Qualification, one share. Remuneration to be fixed by the company.

Compagnie Generale des Petroles Mines et Canaux de Piura-Pérou (Limited).—Registered by V. Thomasset, 37, Walbrook, E.C., with a capital of £80,000, divided into 20,000 £1 shares, 8000 £5 shares, 1000 £10 shares, and 500 £20 shares. Object, to adopt an agreement, made October 16, 1894, between Don Joseph del Carmen Sevillas of the one part, and F. A. Mori, on behalf of this company, of the other part, for the acquisition of the transfer of concession of lands granted by the Peruvian Government to the said Don J. del Carmen Sevillas, and to carry on the business of prospecting, mining, quarrying, and of dealing in and exporting oils and ores of all kinds. There shall not be less than three nor more than seven directors: the first are to be elected by the signatories to the Memorandum of Association. Qualification, £100. Remuneration, £100 each; Chairman, £150.

Western Australian and General Association (Limited).—Registered by Clarke, Rawlins, and Co., 66, Gresham House, E.C., with a capital of £100,000 in £1 shares (300 founders). Object, to carry on all kinds of exploration business in Western Australia or elsewhere; with a view to the above object, to adopt and carry into effect an agreement expressed to be made between the Exploration Company (Limited) and Gibbs, Bright, and Co., of Melbourne, of the one part, and this company of the other part; and as miners and smelters generally. The Exploration Company (Limited) are the first managers; the first local managers in Western Australia are the firm of Gibbs, Bright, and Co., of Melbourne.

United Mines Ore Reduction Company (Limited).—Registered by Williams and Neville, 28, Austin Friars, E.C., with a capital of £50,000 in £5 shares. Object, to acquire, on lease or otherwise, a site or sites at or near Coolgardie, in the colony of Western Australia, and elsewhere; to establish and carry on works for the reduction and treatment of ores, and to assay, crush, dress, manipulate, prepare for market, and deal in ores, metals, and minerals of all kinds. The first directors—to be not less than four nor more than seven—are to be elected by the signatories to the Memorandum. No qualification stated. Remuneration, £100 each per annum (Chairman £150) and a percentage of the profits.

Golden Dove Mining Company (Limited).—Registered by H. Montague, 5 and 6, Backlersbury, E.C., with a capital of £50,000 in £1 shares. Object, to acquire, by purchase or otherwise, certain properties known as the Golden Dove Mine, being the mining area

known as, and being No. 64 of the Ingobera or Umsinga Gold Fields, Natal, South Africa, and to carry on and conduct the business of mining and smelting in all its branches. There shall not be less than three nor more than seven directors. The first are E. Edwardes, F. M. D. Stewart, and G. R. Rogers. Qualification not specified. Remuneration to be determined by the company.

Mines Purchase Syndicate (Limited).—Registered by F. Dallas, 1, Philpot Lane, E.C., with a capital of £10,300, in £1 shares—300 founders'. Object, to carry on the general business of a mining, smelting, trading, and metallurgical company in Western Australia or elsewhere. The first directors—to be not less than three nor more than seven—are to be elected by the signatories to the Memorandum of Association. Qualification, 10 shares. Remuneration, £100 each per annum.

Cala Mines Syndicate (Limited).—Registered by Nokes and Stammers, 57, Basinghall Street, E.C., with a capital of £1000 in £10 shares. Object, to acquire the Cala Copper Mines, in the province of Huelva, Spain, with the buildings, machinery, and plant appertaining thereto, and to explore and work the same, or any other mines in Spain. Most of the regulations contained in Table A apply.

Southern States Exploring and Finance Syndicate (Limited).—Registered by E. F. Weldon, 47, Old Broad Street, E.C., with a capital of £20,000 in £1 shares (1000 deferred). Object, to enter into an agreement, particulars of which did not transpire, and to acquire, develop, and turn to account any rights, options, privileges, and concessions granted in the Southern States of America or elsewhere. Most of the regulations of Table A apply.

CARBORUNDUM.—Carborundum is to be made at a factory near Niagara Falls, where the Power Company will furnish 1000 horse power for the purpose. The method by which carborundum will be manufactured is stated to be as follows:—Ordinary coke is crushed to a fine powder, and common salt and a good quality of glass sand are mixed with it in the proportion of 20 parts of coke, 25 of sand, and five of salt. This mixture is placed in a furnace around a core of coke, and a current of from 950 to 1000 amperes is passed through the furnace between nine 2-inch carbons at either end; this is maintained for from 10 to 14 hours. After cooling, the walls of the furnace are removed, and the top crust broken off and the carborundum taken out. The crystals are then washed, crushed, and thrown into a stream of water, being graded in a series of tanks. When moulded into wheels the firing takes from four to six days.

SALES BY AUCTION.

** Advertisements are inserted in this column at the rate of 8d. per line with a minimum charge of 4s.

THE NORTH EASTERN BULTFONTEIN, LIMITED. (IN LIQUIDATION).

NOTICE OF SALE.

NOTICE IS HEREBY GIVEN, that a PUBLIC SALE of the Claims and other Assets of The North Eastern Bultfontein, Limited (in Liquidation), will be held at Bultfontein District of Kimberley, Griqualand West, on TUESDAY the 11th December 1894.

Further particulars can be had on application to Messrs. FLUX, THOMPSON, and FLUX, Solicitors, 3, East India Avenue, London, E.C.

F. J. GARDINER,
Official Liquidator.

Dated at Kimberley, Griqualand West, South Africa,
this 15th day of October, 1894.

BILLITON COMPANY.

THE MANAGERS beg to give notice that at the PUBLIC AUCTION to be held at Batavia, on December 19th, 1894, will be SOLD

13,000 Piculs of Billiton Tin.

A. VAN KAPPEN, Director.

M. G. STAAL, Secretary.

The Hague, November 19th, 1894.

SHIPPING.

UNION LINE.

FOR SOUTH AFRICAN GOLD FIELDS.—WEEKLY SERVICE.—CAPE OF GOOD HOPE, NATAL, and EAST AFRICAN ROYAL MAIL STEAMERS.—THE UNION STEAMSHIP COMPANY'S ROYAL MAIL and INTERMEDIATE STEAMERS will sail as follows for the SOUTH and EAST AFRICAN PORTS, to ZANZIBAR, calling at LISBON, MADEIRA, and TENERIFE.

Steamers.	Antwerp.	Rotterdam.	Hamburg.	Southampton.
Pretoria.....	Nov. 20	Nov. 24	Dec. 8	
Moer.....			Dec. 8	
Greek, twin screw.....	Dec. 4		Dec. 3	Dec. 15
Tartar.....				Dec. 22

Calling at Madeira.

The New Twin Screw s.s. Norman (7302 tons) will sail February 2, 1895.

Free railway tickets from London and Plymouth to Southampton.

Cheap Tickets are issued for Passengers' Friends.

The Union Line Express is despatched from Waterloo Station (Main Line platform) every Saturday.

RETURN TICKETS ISSUED.

Apply to the UNION STEAMSHIP COMPANY (Limited), Canute Road, Southampton; 14, Cockspur Street, London, S.W.; and South African House, 94 to 96, Bishopsgate Street Within, London, E.C.

CASTLE LINE.—CAPE & NATALAILS.

WEEKLY SERVICE FOR THE GOLD FIELDS OF SOUTH AFRICA.—THE CASTLE COMPANY'S STEAMERS leave LONDON (East India Dock Basin, Blackwall) every FRIDAY, and sail from SOUTHAMPTON every SATURDAY.

Steamers.	London.	Southampton.
Dunottar Castle (via Madiera)	Nov. 20	Dec. 1
Doune Castle (via Canaries)	Dec. 7	Dec. 8
Grantrutty Castle (via Madiera)	Dec. 14	Dec. 15
Lismore Castle (via Canaries)	Dec. 21	Dec. 22

For Madagascar and Mauritius.

Return tickets to all Ports.

Free Tickets by Castle Express from Waterloo to Southampton.

Apply to DONALD CURRIE and CO., 3, Fenchurch Street, London, E.C.

West End Agency, THOS. COOK AND SON, 13, Cockspur Street.

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COMPANIES AND LEGAL ANNOUNCEMENTS.

** Advertisements are inserted in this column at the rate of 8d. per line with a minimum charge of 7s. 6d.

JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY (LIMITED).

NOTICE OF INCREASE OF CAPITAL.

THE Directors are of opinion that ADDITIONAL CAPITAL can be profitably employed in development of the vast mineral and other resources in the Transvaal. They have, therefore, decided to INCREASE the CAPITAL of this Company to £650,000 by a further issue of 300,000 shares of £1 each.

The New Shares will be issued at a premium of 10s. per share, the whole of which premium will be carried to a Reserve Fund.

Of the present issue of capital 175,000 shares will be reserved for allotment on application by shareholders on the register on 1st day of December, 1894, in proportion of one new share for every two on the register at that date.

The remaining 125,000 have been applied for on the same terms, and will be allotted in fall.

These shares will not rank for dividend until after December, 1894, but will thereafter participate equally in all profits.

The entire issue of additional capital and premiums has been guaranteed.

Shareholders on the African register can be transferred to the London register free of charge by lodging their certificates at the London office.

Copy of circular and application form can be obtained by Shareholders at the London office.

Applications for shares must be made before the 30th November.

The Transfer Books will be closed from the 3rd to 10th December, 1894 (inclusive).

By Order,

THOS. HONEY,

Secretary to London Agents.

2, Drapers' Gardens, London, E.C.
N.B.—Only registered shareholders of the Company are entitled to apply.

THE CAPE COPPER COMPANY (LIMITED).

9, Queen Street Place, London, E.C.,

22nd November, 1894.

NOTICE IS HEREBY GIVEN, that at a Meeting of the Directors of this Company, it was resolved:—

"That a dividend of 1s. 3d. per Share be declared on the Cumulative Preference and Ordinary Shares, free of Income Tax, payable on the 1st day of January, 1895, to the Shareholders on the Books of the Company on the 5th day of December, 1894, and that the Transfer Books be closed during the said 5th day of December, 1894."

Preference Coupons No. 6 and Ordinary Coupons No. 18 will be paid at the above rate, free of Income Tax, on presentation at the Company's Office.

By Order of the Board,

J. C. LEAVER, Secretary.

THE OOREGUM GOLD MINING COMPANY OF INDIA (LIMITED).

6 and 7, Queen Street Place, London, E.C.,

November 20th, 1894.

AT A MEETING of the DIRECTORS of this Company, held TO-DAY, it was Resolved—

"That an Interim Dividend (free of Income Tax) of Two Shillings and Sixpence per Share on both Preference and Ordinary Shares be and is hereby declared, payable on the 10th day of December, 1894, to the Shareholders on the books of the Company on the 24th November, 1894, and that the Transfer Books be closed during the said 24th November."

JOHN GARLAND, Secretary.

N. B.—This Dividend will make the amount paid for the first eight months of the year 1894, 5s. per Share on the Ordinary Shares, and 7s. per Share on the Preference Shares. The balance Dividend will be payable in April next.

WANTED.

** Prepaid Advertisements are inserted in this column at the rate of 8d. per line with a minimum charge of 4s.

A EXPERT GEOLOGIST, MINING ENGINEER, AND ASSAYER, shortly proceeding to Southern and Central Africa on an Inspecting Commission, would be glad to UNDER-TAKE other COMMISSIONS, and EXAMINE and REPORT upon Mines or Mineral Properties there. Terms very moderate. Address, "MINERALOGIST," 35, Silver Street, Leicester.

A NALYST requires SITUATION, home or abroad (preferably), 12½ years' experience, viz.:—With leading analyst, ironworks, and largest copper mines in Europe. Fluent Portuguese, fair Spanish. Excellent testimonials.

Apply, "CHEESEMAN," Claremont, Gateshead.

PUMPS WANTED.—A Complete Set. About 33 fathoms of 8½ inch rising main Pump Pipes.</

PUBLICATIONS.

** Prepaid Advertisements are inserted in this column at the rate of 8d. per line, with a minimum charge of 4s.

A HAND-BOOK OF GOLD MILLING. By HENRY LOUIS, A.R.S.M., F.G.S., &c.

"It is a valuable companion, and should be found on the shelves, not only of the man in charge of the mill, but also of the student and mining engineer."—*The Mining Journal*.

"We have no hesitation in cordially commending Mr. Louis's treatise as an all-round excellent work on gold milling and gold milling machinery."—*Mechanical World*.

"The author shows thorough familiarity with his subject, and expresses himself clearly and concisely in not too technical language."—*Nation*.

Crown Svo., PRICE 10s. net.

THE GOLDEN QUARTZ REEFS of AUSTRALIA. By WILLIAM NICHOLAS, F.G.S., with Illustrations. A series of Articles especially relating to the Bendigo Gold Field, Victoria. PRICE 2s. Post Free.

A NEW GUIDE TO THE IRON TRADE, OR MILL MANAGERS' AND STOCK TAKERS' ASSISTANT. By JAMES ROSE, of Batman's Hill Ironworks. Second Edition. Comprising Series of New and Comprehensive Tables, practically arranged to show at one view the Weight of Iron required to produce Boiler Plates, Sheet Iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions, to which is added a variety of Tables for the convenience of Merchants, including a Russian table.

"The Tables are plainly laid down, and the information desired can be instantaneously obtained."—*The Mining Journal*.

"900 copies have been ordered in Wigan alone, and this is but a tithe of those to whom the book should commend itself."—*Wigan Examiner*.

"The work is replete on the subject of underground management."—M. BANEK.

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THE COLLIERY READY-RECKONER and WAGES CALCULATOR. By JAMES IRELAND.

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THE LAW OF MERCHANDISE MARKS. By FRANK SAFFORD, of the Middle Temple, Barrister-at-Law, and a Member of the London Chamber of Commerce.

Law Times says:—"This work will be found thorough and practical."

The Law Journal says:—"We have examined it with some care, and have no hesitation in recommending it to the public."

PRICE 7s. 6d.

NOTES ON THE PHILIPPINE ISLANDS: A PAMPHLET REPRINT. By FRANK KARUTH, F.R.G.S. Price 6d.

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"There is both an archaeological and geographical interest about this book, which has been compiled with much labour and care."—*Glasgow Herald*.

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MINERAL RESOURCES OF WESTERN AUSTRALIA.

A Descriptive Account of the various Gold Fields, Tin, Copper, and Coal Districts of the Colony, together with an Appendix containing Notes on the Gold Exports, Gold Mining Regulations, and the Water Question.

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An exhaustive account of this Famous Field, including interviews with Lord Percy Douglas, Arthur Bayley, Esq., and others, accompanied by a large Coloured Map of Western Australia.

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THE ABORIGINES OF WESTERN AUSTRALIA.

"Mr. Calvert's knowledge, gathered from travel in every quarter of the Colony, is now embodied in a really interesting and readable book."—*Mining Journal*.

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WESTERN AUSTRALIA: ITS HISTORY AND PROGRESS. 283 pages, profusely illustrated, and containing large Coloured Map of the Gold Fields.

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MAP OF WESTERN AUSTRALIA, SHOWING THE GOLD FIELDS. PRICE 1s.

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ELMSLIE (LIMITED),

C. T. ELMSLIE, J.P., London. A. B. ELMSLIE, Australia. AUSTRALIAN INVESTMENT BROKERS.

8, WOOL EXCHANGE, LONDON, E.C. With Offices or Agents at all the principal centres in Australia. Telegrams "Abelmoske," London.

Meiss. ELMSLIE's Investment List and Mining Report for November is now ready, post free on application. This list contains full particulars of the soundest dividend-paying securities. Queensland and West Australian Mines specially dealt in.

PUBLICATIONS—(Continued).

The SCIENTIFIC PUBLISHING CO.,

(OF NEW YORK and LONDON.)

20, BUCKLERSBURY, LONDON, E.C.

MODERN AMERICAN METHODS OF COPPER SMELTING. By Dr. E. D. PETEWS. Sixth Edition, 1894. Price, 2s. Full of specially prepared illustrations of modern plants and processes.

"The book is full of information and devoid of the ordinary text-book objections; it bears throughout the stamp of having been written by a practical man thoroughly up in his subject. No metallurgist should be without it for purposes of information and reference."—*Engineering*.

THE METALLURGY OF LEAD and the DESILVERIZATION OF BASE BULLION. By Dr. H. O. HOFMAN. Third Edition, 1893. Price 3s. Containing 275 illustrations taken from working drawings of the most modern plants.

"As a complete epitome of recent practice in lead smelting, the book will be gladly welcomed by the whole metallurgical world."—*Industries*.

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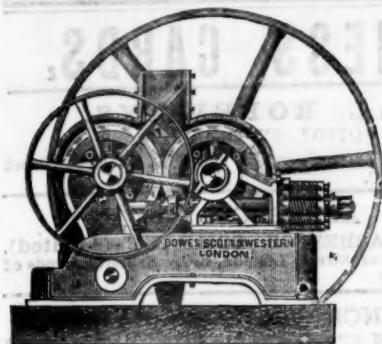
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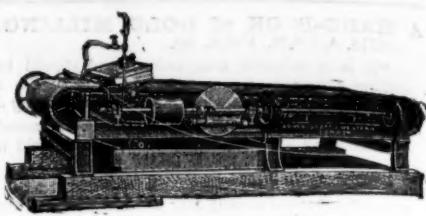
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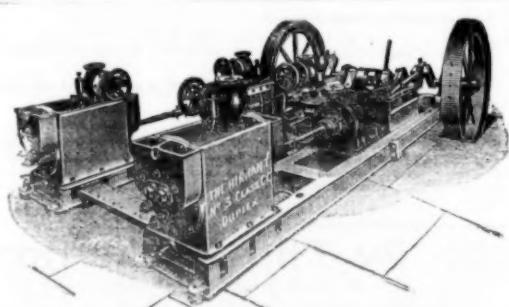
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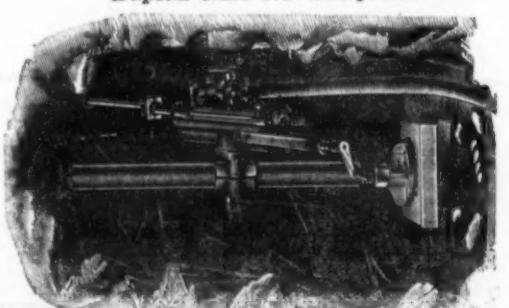
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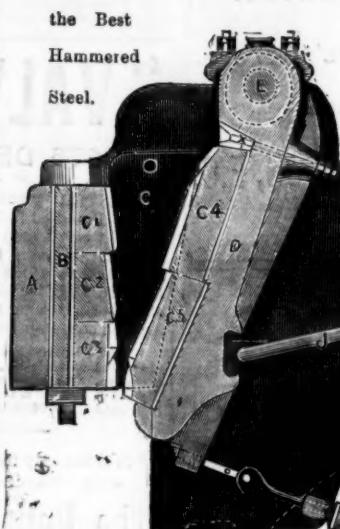
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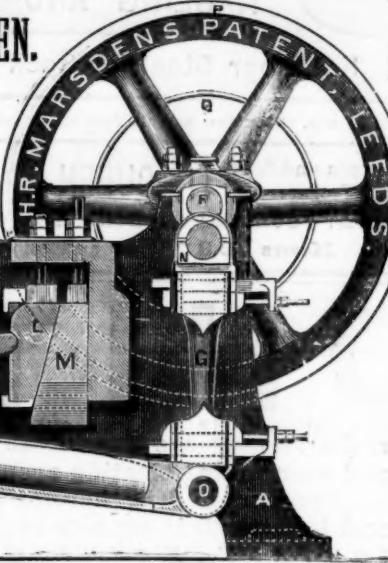
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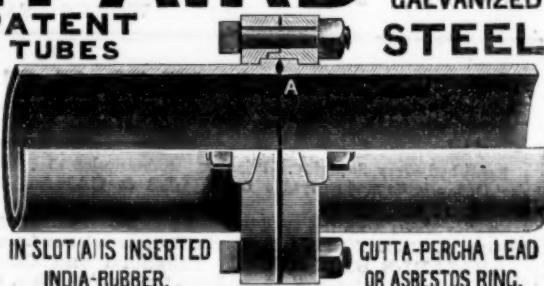


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